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MEDICAL FACTS
AND
OBSERVATIONS.

VOL. II.

MEDICAL FACTS

AND

OBSERVATIONS.

VOLUME THE SECOND.

L O N D O N :

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MEDICAL

MEDICAL FACTS

AND

OBSERVATIONS.

- I. *Case of a compound Fracture of the Leg; with Remarks. By Mr. Henry Yates Carter, Surgeon at Kettley, near Wellington, in Shropshire.*

ON the 4th of January, 1785, Thomas Oliver, a Collier, sixty years old, received, from the fall of a bucket down a coal pit, in which he was at work, a compound fracture of the bones of his right leg.

The injury was effected with so much violence as to occasion an almost complete division of the muscles; so that the lower part of the leg, with the foot, remained hanging only by a small portion of the gastrocnemius internus or soleus muscle.

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B

When

When I first saw him, which was late at night, about two hours after the accident, I found, besides the laceration of the integuments, muscles, and other soft parts, a considerable protrusion of the tibia, in consequence of the violence of the muscular contraction; his strength, at the same time, seeming to be greatly reduced by extreme pain and loss of blood: so that when to these appearances I added the circumstances of his age, and habit of body, (for he had been afflicted with scorbutic ulcers in the fractured limb for several years) I must confess I had little or no expectation of success from any other remedy than the knife. As the hæmorrhage, however, which at first had been profuse, was now considerably checked, (probably by his exposure to cold, for he had been brought a considerable distance on horseback) and was soon totally stopped by the application of spirit of wine to the wound, assisted by slight pressure, by means of a tourniquet, on the crural artery, I resolved to defer the farther consideration of the case till the next morning.

After the wound had been sufficiently cleansed, a slight extension was found sufficient to reduce the limb to its natural posture, which was immediately

immediately done. The wound was then dressed with lint saturated with vinegar and tincture of myrrh, and the limb being secured in its situation, and an anodyne administered to the patient, I left him, under proper care, for the night; having determined in my own mind to propose, the next morning, either the amputation of the leg, or his removal, if possible, [to the County Infirmary, as the poor man's situation, together with his having a large and helpless family, appeared to be forcible reasons for his removal, and to operate against the probability of his recovery at home.

The next day (January the 5th) I visited him early, and found that he had rested much better than could reasonably have been expected. He had but little fever, and appeared to be in tolerable spirits. The discharge of blood, from the time I had left him, had been so inconsiderable as not to have come through the dressings; and as the limb did not seem to suffer from the extremely gentle stricture of the tourniquet, it was thought advisable to leave it on the limb.

As the patient strenuously objected to the proposal of removing him to the Infirmary, as well as to that of amputation, it became necessary to

attempt the cure of the limb at home without an operation.

The first thing to be considered was how to secure a limb in such a state in perfect contact; and in the next place how to guard against an accumulation of matter between the divided ends of the bone: for it was essential that the limb should be kept perfectly steady, and it was reasonable to suppose that so large a wound would, from the discharge, require frequent dressing. I first began, therefore, by preparing a flexible wooden splint, covered with leather, about four inches broad and ten long, upon which was laid a very thick compress or bolster of linen of the same dimensions, the lower part of which was filled with tow, in order to remedy the inequality of the small part of the leg: upon this was laid an eighteen-headed bandage, the two external leaves of which were stiffened with white of eggs, in order, in some measure, to serve as a substitute for splints, in the ordinary mode of application, which in this case was inadmissible. These arrangements being made, the limb was carefully raised while an assistant placed the splint, &c., under it on a pillow, upon which the limb was laid without any inconvenience or pain. None of

the dressings before employed were removed, except the external layer of lint, a fresh quantity of which was applied, and the bandage laid regularly over it as tight as the nature of the case would admit, an opening through the center leaves being made for the admission of all applications that might be necessary, as I was determined to leave the dressings undisturbed as long as possible. A loose splint was then applied, without any ligature, on each side of the limb, and secured in that posture by bolsters of cloth, which were continued on each side above the knee.

A liquid application was then ordered to be very frequently applied, composed of camphorated spirit of wine, two ounces; vinegar, four ounces; tincture of myrrh, one ounce, and sal ammoniac, a scruple: the direction for the use of which was strictly adhered to by the person who was employed to be constantly with the patient, in order to prevent any accident happening to the limb during sleep.

A powder, containing thirty grains of vitriolated tartar, and twenty of diaphoretic antimony, was directed to be administered to him every third hour, in barley water, or some other suitable vehicle; and at night a draught was

given containing twenty-five drops of laudanum.

On the 6th, finding the symptoms of fever rather increased, I gave him a purgative draught, which procured two stools. He had rested tolerably well; the limb continued secure: he began to complain of a sense of soreness and of shooting (to use his own expression) in the limb. In other respects he was as well as could be expected, The use of the lotion was continued without any alteration.

There was little or no material change in the general circumstances of the case till the 10th, when, upon finding some increasing symptoms of fever, which I had reason to think were kept up, if not occasioned, by costiveness, I repeated the purgative medicine, and with a good effect.

On the 11th, observing appearances of discharge from the dressings, they were carefully taken off; the pus seemed to be favourable, and the wound was in a granulating state. A fresh bandage was, without much difficulty, drawn under the limb; and the dressings and other applications, with little variation, were continued as before till the 17th, when the wound was again opened, and I had the satisfaction to

find a callus forming, and the wound in good condition.

As the discharge from the wound was now considerable, and the patient complained of thirst and that his appetite was not so good as it had been, I advised a liberal use of Port wine, and of the red Peruvian bark, both in substance and in decoction, to which I added small doses of nitre, till the 20th, when the symptoms of fever seemed to have subsided. The wound was again dressed on that day, and from that time regularly every day.

After the 30th, the use of the bark seeming to be no longer indicated, it was wholly omitted; the bones gradually united, and the wound healed without any interruption, except from a few small splinters of bone, which came away without much difficulty, and did not appear to be exfoliations.

By the 10th of March he was able to leave his bed, and to walk with the assistance of crutches, and from that time I ceased to attend him. The wound was then completely healed, forming a firm cicatrix; and the leg was straight.

This extraordinary fact is a more striking proof than any I have ever met with of the necessity there is for great deliberation in cases where amputation may be thought necessary on account of recent external injuries. As a caution to us in cases of this kind, and to show that we ought not precipitately to have recourse to extirpation even in the worst kind of fractures, Van Swieten* has quoted from De la Motte a case, somewhat similar to mine, of a man who had the tibia and fibula fractured by the wheels of a carriage loaded with several thousand weight passing over his leg, which occasioned such a contusion and laceration of the part, that the whole limb might have been easily divided with one cut or two of the scissars. In that case a large portion of the tibia was separated, but, notwithstanding this circumstance, the patient, we are told, gradually recovered the use of his limb, without any deformity remaining.

I am aware that Mr. Pott, whose opinion is deservedly of high authority in surgery, particularly refers to the case just now quoted from De la Motte, and observes, that in his opinion,

* Comment. in Aph. Boerh. § 351.

the surgeon shewed much more rashness in attempting to save such a limb, than he would have done in the amputation of it*. In the case of my patient, however, there could be no ground for such a censure; for I am ready to confess that nothing but his absolute refusal to submit to the operation prevented me from taking off the limb. How far Mr. Pott's arguments† in favour of speedy amputation, in cases of this sort, are well founded, I shall not at present attempt to discuss; but however justifiable an operation might have been under circumstances so alarming as those I have described, and in which there appeared such little probability of success, I cannot help thinking that, in similar cases, where hæmorrhage can by any safe means be checked, the divided parts brought into and retained in contact, and when the vital powers have not been too much exhausted, we should be deterred neither by the age of the patient, nor by a seemingly bad habit of body, (reasons that, to my knowledge, are too

* Remarks on Fractures and Dislocations. 8vo. London, 1769. p. 75.

† Ibid. p. 73 & seq.

often alledged) from endeavouring to avoid the necessity of having recourse to amputation.

Upon the whole, I feel myself disposed to join in opinion with Dr. Kirkland *, that, however necessary and right speedy amputation may be in great hospitals, this ought to be no precedent for country practice, in which much more may certainly be expected from the resources of nature than many imagine.—“ My
 “ connections,” observes the experienced and judicious writer just now mentioned, “ with
 “ those of my profession have not only led
 “ me to know the success of many Surgeons,
 “ whose situation affords them only common
 “ accidents; but also of several, who, as well as
 “ myself, have had the care of the workmen in
 “ Collieries, Lime-kilns, Lead-mines, and the
 “ like, where the most violent injuries of this
 “ kind frequently happen. In these places, the
 “ bones are, for the most part, not only broken
 “ into many pieces, and their extremities, now
 “ and then, separated, so as to come away;
 “ but they are also often forced into the ground,
 “ the principal arteries sometimes divided, and

* Observations upon Mr. Pott's General Remarks on Fractures, &c. 8vo. London, 1770. P. 41.

“ the muscles, &c. are frequently lacerated, and
 “ crushed with immense weights, even so much,
 “ that coal fleck, &c. in great quantities, is
 “ driven into the very substance of the flesh,
 “ so as to render the accident as formidable as
 “ possible; and yet, it is a notorious fact, that,
 “ where the part is not absolutely destroyed,
 “ these desperate cases seldom fail of being
 “ cured, without the loss of the limb *.”

Kentley,

August 2, 1791.

II. *Case of a Boy whose Head was pressed between
 certain Parts of an Engine employed for drain-
 ing a Coal Mine. By the Same.*

ON the 21st of August, 1787, Thomas
 Scarrot, a boy about ten years of age,
 being at play, and looking into the cylinder at
 Hadley engine, (which is employed for drain-
 ing a coal work) was caught between that part
 of it and what is called the horse head, and re-
 ceived a wound, which extended from the up-

* Ibid.

per

per part of the left temporal muscle obliquely through the parotid gland and masseter muscle, dividing into two branches, one leading through the sphincter oris, the other passing through the buccinator muscle, and ending under the lower jaw.

The muscular integuments were violently lacerated, the head having been pressed between a space of about three inches; and it seemed to be owing to this pressure that the hæmorrhage which might have been expected to take place was in a great measure prevented.

The fore part of the os temporis was not only fractured, but completely separated, as was the contiguous os malæ; the fracture continuing its course between the pterygoid and styloid processes, so as to divide the upper jaw in those parts and the lower jaw a little before the coronal process. These parts were divided in such a manner, that, when I first saw the patient, I found the os malæ and the fore part of the upper jaw thrown out of their places, so as to expose a wound of at least four inches wide; the machine that inflicted it having also penetrated so deep as to fracture that part of the septum nasi which is formed by the processes of the ethmoidal and sphenoidal bones.

Besides

Besides these wounds, there was another upon the os bregmatis, which formed an angle that extended each way towards the os frontis, and had detached the scalp the whole distance so completely, that when he was conveyed home the scalp lay over his face.

Under these circumstances, which were the more alarming, as from the injury done to the parts necessary to mastication and deglutition there was every reason to fear that his support would be a work of much difficulty, there seemed to be but one consideration for the present with respect to the wounds; and that was to endeavour, if possible, to reduce the shattered bones into their places, and there retain them as well as the nature of the case would admit, leaving the rest to nature, as any farther assistance for the present could be but of very trifling effect.

The parts were accordingly first well freed from a quantity of grumous blood that covered the whole head, by washing them with warm vinegar and a small proportion of camphorated spirit of wine; after which the lacerated parts were replaced in a much better situation than was at first thought to be possible. The lower jaw, which had been thrown out of its articulation

lation on the right side, was reduced, and, after dressing the wounds with large pledgits of lint dipped in vinegar and *balsam. traumatic.* a mask-like bandage was applied over the whole, and so secured behind as not to be in danger of removal from the expected restlessness of the patient, as I determined to leave the dressings as long as possible before they should be renewed.

In order to prevent the bandage, &c., from becoming uneasy, and the parts from being excoriated, they were kept constantly wet with a mixture, consisting of a solution of sal ammoniac in vegetable acid with a small proportion of extract of lead, the good effects of which I had before experienced in lacerated wounds, where it had seemed to promote the union of the parts, and to moderate, in some measure, the discharge.

After the wounds were dressed, the patient attempted to drink a small quantity of wine and water, but a considerable part of it returned through his nose. In the evening, however, an opiate was got down without much difficulty, and he rested tolerably well.

His drink was directed to be weak wine and water acidulated with lemon juice; his diet,
thin.

thin panada, water gruel, sago, or boiled rice : and, in consequence of his inability to take much at a time, a person was employed to be frequently administering nourishment, which was conveyed into the pharynx by means either of a small funnel, or a tea-pot with a long neck, which reached beyond the injury in the palate.

He drew his breath with difficulty, though less so than from the nature of the case might have been expected.

The next day there was a considerable degree of fever, for which suitable remedies were directed. Care was taken at the same time to obviate costiveness ; and the opiate was occasionally repeated with a view to lessen the effects of irritation.

On the sixth day, as the bandages and dressings had become disagreeable from the discharge, they were carefully removed. The pus was found to be moderate in quantity, and of a good consistence ; the wounds looked well ; and the parts, notwithstanding they had been much bruised, had already begun to unite. The same kind of dressing was applied, and in the same manner as before.

On the ninth day from the accident the dressing was again repeated. I had then the pleasure to find the union in several places sufficiently complete to insure a retention of the adjacent parts with a bandage less strict than the one that had at first been applied. The wounds continued to look well, and to discharge a good pus; the patient was free from much pain, except a little upon the application of the dressings: he rested well, and began to take considerable nourishment, the febrile symptoms gradually subsiding.

From this time we began to dress the wounds every day, and continued so to do till the month of December following, when the whole (except a wound upon the external orbit of the injured eye) was firmly cicatrised. A number of exfoliations and some small splinters of bone came away from this wound on the orbit, and occasioned it to be kept open a considerable time; as was also a large orifice in the palate, from whence a considerable exfoliation, that seemed to be a portion of the septum nasi, came away.

From the time of the accident the patient lost the sight of the eye on the injured side; and the decay of the other was gradual, with-
out

Out any inflammation or pain. In other respects he is perfectly well.

August 2, 1791.

III. *Case of a Boy whose left Leg and Thigh, together with Part of the Scrotum, were torn off by a Slitting Mill. By the Same.*

ON the 24th of November, 1789, a boy, named Miles, aged about twelve years, in passing through the slitting mill at Kettley, unluckily put the great toe of his left foot between the pinion wheels while the mill was at work. The consequence was, that the toe fastened, and the limb was gradually drawn in, and crushed as it went, till the mill had reached as near to his body as where the sartorius muscle crosses one of the heads of the triceps. At that instant a man, hearing his cries, came to his relief, and forcibly tore him from the machine, by which means the muscular integuments were separated from his body, together with the whole of the left side of the scrotum. The other side also of the scrotum was lacerated, together with part of the pyramidalis muscle,

the laceration extending from that side of the pubis in the direction of the line marked in the drawing* ; the separation of the external layer of muscles on the posterior side extending as far round as the gluteus medius.

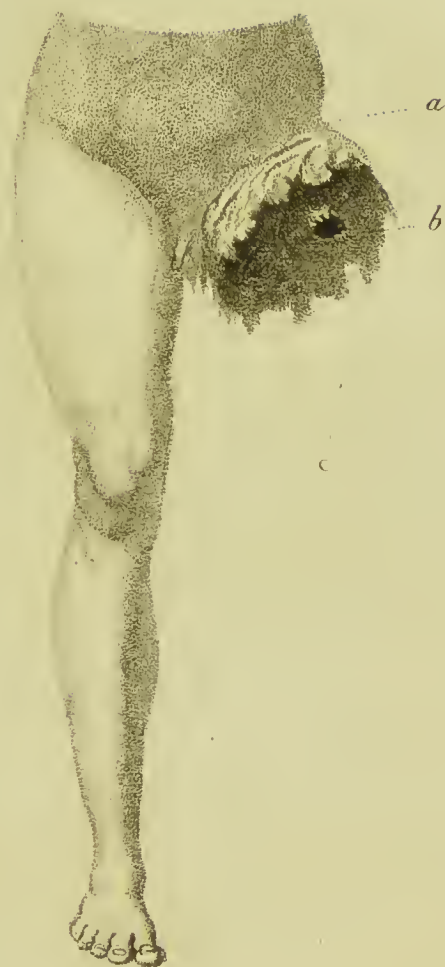
When I attended, which was immediately after the accident, I found him laying on the floor covered with a blanket, and seemingly free from pain, or any anxiety † farther than what appeared to proceed from the trouble his parents were in in consequence of the accident.

In almost any other case the first consideration would have been to have searched for and secured the crural artery ; but here a deviation from general practice, in cases of amputation, became necessary, as a diligent search would,

* See the reference at *a* in the annexed plate ; *b* points out the part at which the bone was separated ; and *c* the lacerated remains of the fascialis and gluteus maximus muscles.

† An extraordinary instance to the contrary of this I saw in the memorable action on the 12th of April, 1782, on board the *Ardent*, (at that time a French ship) in a man who received a wound from a shot which took off the right thigh in a similar manner to this ; but who became delirious from the moment of the receipt of the injury, and expired in about twelve hours without any remission of the delirium till within a very few minutes of his death.

in



• *Ravenhill sculp.*

in all probability, have been attended with the utmost danger, inasmuch as the whole of the remaining muscular integuments, as far up as where the bone was divided, were violently lacerated, and the whole crushed together in a mass. For this reason, and as there was no hæmorrhage present, I did not think it prudent to remove any part of the adhering muscles with a view of finding the artery, as the chances in such a case seemed to be considerably against the probability of discovering it but by a fatal hæmorrhage: and it appeared reasonable to suppose that a portion of the artery had been drawn out and carried away with the general mass in the exertion used to free him from the machine; and that this, together with the violence of the pressure upon such a body in so small a space, and the contraction usual in such cases, had perhaps (may I say undoubtedly had?) closed the mouths of the vessels in the muscular integuments that remained. The artery, even if it could have been discovered, would perhaps have been so near the groin as to have rendered the securing it a work of much difficulty, if not totally impracticable, and therefore certainly fatal. For these reasons, and finding (notwithstanding he had been much

disturbed by his removal home) no appearance of hæmorrhage, I thought myself highly justifiable in the omission.

I moreover determined in my own mind not to attempt even a separation of any of the lacerated parts, except such as from their situation should be more immediately in the way of dressing, and from the removal of which there could be no danger.

He was laid on a mattress, and bolstered as much upon his right side as could be admitted with any degree of ease; that part of his body was also raised considerably higher than the other. Before the lacerated stump was wholly placed together I thought it prudent to take as much care, as the nature of the case would admit, to prevent a future hæmorrhage, by endeavouring by some kind of stricture to lessen the effects of the blood's velocity on the part. For this purpose a broad roller or bandage was passed round his body, and properly secured; and to this another broad piece was fastened on the back part near the right os innominatum. The integuments were then placed together, round the end of the bone, and, after being well covered with lint dipped in a mixture of equal parts of camphorated spirit of wine and spirit

spirit of turpentine, were sprinkled well with wheat flour, over which another layer of lint pledgits and a suitable compress were applied. A bolster was then placed upon that part where the inguinal artery passes out of the groin, and the bandage being brought under the right thigh, and carried over the bolster, was fastened upon the other hip. The pressure which this occasioned seemed to be as considerable as could with prudence be admitted.

The boy seemed to have suffered very little fatigue from the dressing, and was in good spirits. He was permitted to have a small quantity of weak wine and water for the present, and was ordered barley water acidulated with lemon juice, and balm tea, for his common drink. In the evening an opiate was administered, in order, as much as possible, to guard against spasm, of which there appeared reason to be apprehensive.

On the 25th I visited him early in the morning, and, contrary to my expectation, found him not only alive, but in excellent spirits. There was no discharge of blood from the dressings; there was a gentle warmth on the parts: he had rested considerably, was free from severe pain, and had very little fever.

The whole of these circumstances, so unexpectedly favourable, gave me some hopes, if a discharge could be procured, a kindly separation of the sloughs produced, the fever moderated, and his strength supported, that there might be a chance of his recovery.

A stool was procured by means of a clyster; and he was directed to take occasionally of a saline mixture, to which were added small doses of opium. His diet consisted of sago, boiled rice, chicken broth, and salep.

On the 26th I found that he had rested well; was perfectly sensible; free from pain; had taken considerable nourishment, and appeared extremely composed. His fever, notwithstanding, was a little increased. He was now directed to take liberally of a decoction of bark, and an opiate was administered in the evening.

On the morning of the 27th I found him complaining of a soreness of the parts; he was sensible; had rested considerably; but did not appear so perfectly composed as hitherto; his fever, however, was much abated, and upon turning down the dressings I found the appearance of matter beginning to form.

On the 28th the patient was apparently weaker. He had passed a restless night; com-
3
plained

plained much of thirst and head-ach ; and was frequently seized with slight shivering. He had had one stool since yesterday, and now took red bark in substance, added to the decoction, with elixir of vitriol ; and drank port wine.

On the 29th I found that he had had a restless night, and had been at times delirious. In the morning, however, he took nourishment, and seemed easy and composed, his pulse indicating no very great degree of irritability : he spoke at the same time sensibly, though faintly ; but died that day about noon.

This case, though it may not be capable of much useful application, seems to be highly deserving of being recorded as a curious and extraordinary fact. I can find only two instances of an accident at all analogous to it in books. Of each of those the event was successful ; but as in both it was the arm instead of the thigh that was torn off, it may, perhaps, be reasonable to presume that a greater degree of danger attends such an accident in the lower than in the upper extremities of the body. One of the two cases is that described by Mr. Cheselden in his *Anatomy of the Human*

Body *, (where he has given a figure of the patient), and by Mr. Belchier in the Philosophical Transactions †, of Samuel Wood, a Miller, whose arm, with the scapula, was torn off from his body by a rope winding round it, the other end being fastened to the coggs of a windmill. This happened in the year 1737.

The other case occurred, in 1776, to Mr. James Carmichael, Surgeon at Port Glasgow, and is inserted in the fifth volume of Dr. Duncan's Medical Commentaries. The subject of it was a girl, three years and a half old, who was entangled, with an apron pinned about her shoulders, by the spindle of a barley mill, going at its full career ‡, and twisted round it with equal velocity. In this case the left arm was torn off an inch and a half above the elbow, and the muscles and integuments were much lacerated higher up.

It is worthy of remark, that in neither of

* Sixth Edition, 8vo. London, 1741. page 321.

† Vol. XL. page 313.

‡ From an accurate calculation, Mr. Carmichael found that the spindle of the mill flew round 140 times in a minute, when working with its full force.

these two cases, any more than in the one I have related, was there a discharge of blood. In the Miller a cure was completed without the least appearance of hæmorrhage, and without a single blood vessel having been taken up; and Mr. Carmichael relates of his patient, that when he first saw her, an hour after the accident, he was astonished to find that she had not lost a spoonful of blood. How long the absence of hæmorrhage would have continued in this case could not be determined, as the injury done to the parts above the elbow rendered the amputation of the arm at the shoulder necessary, as affording, seemingly, the only probable chance of saving the life of the patient. The operation was accordingly performed, and the cure completed in little more than two months.

August 2, 1791.

IV. *Case*

IV. *Case of a fungous Enlargement of the Extremity of the female Urethra; with Remarks.*
By Mr. T. Hughes, Surgeon at Stroud Water in Gloucestershire.

IN the month of May, 1769, my advice was desired for a young lady in the eleventh year of her age, and of a very thin habit of body, for a disorder first taken notice of above three years before, within a few days after her having taken a purge which had operated smartly. A surgeon, who was consulted soon after the disease appeared, had given it as his opinion that it was a prolapsus uteri, and accordingly advised a bit of cork to be worn as a pessary. This occasioned so much pain, that it was laid aside after having been used a few days; from which time she wore only a bolster of linen sustained by a bandage. From the beginning there had been a discharge from the part, which her friends imagined kept her thin: they shewed me her linen, and I observed that it was stained to a considerable extent with a bloody serum. She sometimes complained of pain in the part, as if knives were running through it, and more so of late than in the beginning

ginning of her disorder. At first she felt some pain in making water, but not lately : her mother thought that she was unable to retain her urine long after the inclination to void it came on. In general she did not suffer so much as to prevent her using a good deal of exercise, except on horseback, which gave her considerable uneasiness. She otherwise enjoyed a pretty good state of health.

Having received this account from her friends, I examined the patient, and found a substance appearing just without and filling up the os externum ; it was of a red colour, and of a softish, spongy texture, with an irregular, jagged surface ; was sore when touched ; and a bloody serum oozed from it. It was somewhat contracted at its base, which was evidently attached anteriorly to the groove a little below the clitoris, its posterior part lying loose on the posterior part of the os externum and entrance of the vagina ; it could not be, therefore, a prolapsus uteri. While the labia were held asunder by an assistant, I raised the fungus towards the pubis over a bent probe, which gave me an opportunity of examining its posterior part, and of knowing that the meatus urinarius was not behind it ; and by desiring the patient to
make

make water, which passed through the center of the fungus, and by introducing a probe through the opening into the urethra, I was satisfied that the excrescence sprang from the whole circumference of the meatus urinarius, or extremity of the urethra itself; from which it appeared to be extended about half an inch. The cuticle, or membrane of the vagina, did not seem to be continued farther than where the urethra naturally terminates. The mother told me that the surface of the tumour at first was not jagged, but smooth.

I gave the friends my opinion, that the tumour was not formed by the uterus; that it was an excrescence; and that a cure could not be expected but from extirpation. This they were desirous of having performed; but being apprehensive, on account of the close connexion of the fungus with the urethra, that some troublesome symptoms might arise in consequence of the operation, I desired them first to take farther advice. After some deliberation, they chose to have the case represented to the late Mr. Donne, of Bath. He concurred with me in the necessity of the operation; he thought that much trouble would not occur afterwards; said that a tent of lint dipped in oil might be introduced

introduced into the urethra ; but did not consider it as very necessary, observing that the urine would of itself keep the passage open.

I ordered a gentle purge to be taken on the day preceding the operation, which was performed on the 23d, and in which I had the assistance of the late Mr. Cooper, Surgeon at Wotton-Underedge, with whom I was at that time in partnership.

The patient having made water, and being conveniently placed and secured, a ligature was passed through the body of the fungus, by means of a large crooked needle, and a loop formed, by which I was enabled to draw the fungus a little forwards and keep it steady ; and the border of the fungus being occasionally held aside with a hook, I was enabled the more easily and expeditiously to remove the fungus, which was carefully done with a very small knife, the incision being made as near as possible to that line, which seemed to distinguish the fungus from the urethra, by the termination of the cuticle or membrane of the vagina. The bleeding, after continuing pretty freely for a few minutes, stopped of itself. A bit of lint squeezed out of olive oil, and retained by a pledgit of white cerate, compress, and

and bandage, was all the dressing. The patient was put to bed, and directed to be kept on a cooling liquid diet.

On examining the fungus after the operation, it appeared about the size of the nipple of an adult; its anterior part being expanded, formed, as it were, a little cup, with its border indented like a cock's comb, having a hole in its bottom, which was the orifice of the urethra, which ran through the body of the fungus: the internal membrane of the urethra was continued to the edge of the indented border, which was of a deeper red colour and softer texture than the other parts of it. Before the operation the meatus urinarius was covered by the sides of the border folding over each other.

The patient made water soon after she was put to bed, and with but little smarting; and again twice she voided a little urine some time afterwards. In the afternoon, four or five hours after the operation, she began to be very uneasy from strangury; and two or three hours later I found her in great pain and uneasiness from a constant inclination to make water, without being able to void a drop. Her pulse was quick; she looked rather hot; there was a considerable tumour above the os pubis; nothing
appeared

appeared amiss about the wound, which was of a darkish red colour, and the adjacent parts did not seem to be much swelled, although the meatus urinarius could not be distinctly seen. For three hours flannels wrung out of an emollient fomentation were applied to the pudenda and hypogastrium; she took of a mixture of nitre and spermaceti, and drank freely of barley water with gum arabic. At ten in the evening, the pain increasing, and the tumour from the distention of the bladder rising very fast, so as to reach almost to the navel, and being very hard and sore to the touch, she was put into a semicupium, in which she sat ten minutes; during which time, and for a few minutes afterwards, she was free from pain, but could not void a drop of urine. I then introduced a small catheter, without pain or difficulty*, and drew off a pint and a half of urine, highly tinged with blood. The distention of the bladder was entirely removed; she received immediate ease, and presently fell asleep. In about three hours she awaked with an inclination and

* Although I could not distinctly discern the orifice of the urethra, the groove below the clitoris and the wound proved a sure guide for the catheter.

inability to make water. I immediately drew off the same quantity of urine as before, which was less tinged with blood. The catheter met with a slight obstruction at the meatus urinaris. From this time to the 27th she made water without the least difficulty, and, excepting a slight soreness of the part, had no complaint. The dressing was renewed as often as necessary, to prevent any inconvenience from its being wet with urine.

On the 24th, the day after the operation, the urine was of a natural colour; the blood, with which it was before tinged, flowed most probably from the wound into the bladder. The orifice of the urethra was now observable.

On the 26th the wound was of a very little more florid colour than the adjacent parts. Observing a little rising on one side of the meatus urinaris, not larger however than the fourth part of a grain of wheat, which seemed to be an unevenness left by the knife in the operation, but being fearful it might increase in bulk, I thought it prudent to touch it with the lunar caustic, and apply dry lint. She was permitted to sit up, and to eat a little solid food.

On the 27th she felt more smarting in making water; the part was more sore, and seemed
a little

a little inflamed, which I attributed to the caustic, and thought it would soon go off; but very early the next morning a messenger was dispatched for me in great haste, on account of her having a return of the suppression. She had passed very little urine from the time I was with her, about noon of the preceding day, and for some hours had been in great pain. I found, by the tumour in the hypogastrium, that the bladder was distended as much as in the former suppression.

As she had so readily obtained relief before from the catheter, after other means had proved ineffectual, I attempted, without hesitation, to introduce it now; but the obstruction at the meatus was so great, that, with the degree of force which I thought I might venture to use, I could not overcome it. The attempt gave very great pain, and was followed by a considerable bleeding from the parts, which were much swollen: the bleeding, however, soon ceased. This disappointment gave me and the friends of my patient much uneasiness.

As she had been two days without a stool, I threw up an emollient clyster, which soon produced a copious alvine dejection; but the suppression of urine continued. She was soon after

placed in the semicupium, in which she continued fifteen minutes, and was easy.

While these things were doing, I revolved the case much in my mind: in particular, I considered how easily the catheter passed when I first used it immediately after her coming out of the semicupium, and that it did not pass quite so easily some hours afterwards. Encouraged by this reflection, I hoped that I might again succeed after the semicupium; and therefore resolved to make the attempt, and to leave the catheter in the bladder, if it should succeed. For this purpose I cut off the catheter, so as to make a canula of a convenient length, and by some little contrivances prepared it for its being secured in the urethra. The suppression not being at all relieved by the semicupium, I introduced the canula, which met with some resistance at the meatus, but occasioned no hæmorrhage, and drew off a pint and a half or a quart of urine, with the same relief as before. A cork was put in the canula, which was secured from slipping by tapes fastened to a bandage round the waist. I directed that she should be kept very quiet in bed, lying on her back; that the canula should not be removed, unless it occasioned pain; and that the cork

should be taken out when she had an inclination to make water.

As the friends of the patient imputed this return of the suppression to her being indulged in sitting up, and eating solid food, though sparingly, she was again confined to a liquid diet; but I then thought that it was chiefly owing to the irritation brought on by the use of the caustic on the 26th.

My patient slept from seven o'clock this morning (the 28th) till noon, when her mother drew off the urine by the canula, according to my direction; but soon afterwards complaining of uneasiness, and some coagulated blood coming from the part, the canula was removed. She was easy after the discharge of the blood till about seven in the evening, when I found her complaining of pain from inability to make water, and I imagined that recourse must have been again had to the catheter. She suffered so much from the first attempt to introduce it in the morning, that she had a dread of it: she was, however, desirous of using the femicupium; in which, after continuing about ten minutes, she grew faint, and upon being taken out her limbs were convulsed; but almost immediately on being laid on the bed she

fell asleep, and slept till three or four o'clock the next morning, when she awoke much refreshed, and made water.

In the forenoon of this day (the 29th) the parts appeared free from inflammation; the meatus urinarius was very distinct, and its border somewhat prominent, so that the extremity of the urethra had, in a considerable degree, acquired its natural appearance: the little prominence, which had been touched with the caustic, remained of the same size, but did not differ in colour from the adjacent parts. She had by this time made water twice or three times, and was very cheerful. We were, therefore, in hopes, that, by keeping her quiet in bed, confining her to a liquid diet, and occasionally giving some laxative medicine, for some days, and by applying nothing capable of exciting pain, we might prevent a relapse. I was indeed of opinion that it might be proper to make use of the canula or bougie, after a few days, when the wound might be supposed to be nearly healed.

On the 30th, the stream of urine appearing to be somewhat twisted, by the little rising on the side of the meatus being turned a little over the orifice, I applied a small bit of fine sponge
over

over the lint, so as to turn its point outwards from the meatus, which answered the purpose.

On the 1st of June there was only a little mucous discharge on the dressing; the part appeared to be healed, and naturally moist. During two or three hours this afternoon she had an inclination to make water, which she voided only by drops, attended with a smarting that afterwards went off. The day following, however, when I examined the part, I could not perceive any thing amiss.

She had not yet sat up for the last six days; her belly had been kept sufficiently open, and she had eaten nothing more solid than boiled bread, or toast with her tea, and this only for a day or two. As she made no complaint this day, (June 2) I permitted her to sit up, and to eat a little white meat.

On the 3d the suppression of urine returned. As she had no stool for a day or two, an emollient clyster was thrown up, which returning alone, another of pure oil was given, and this likewise came off without any fæces. She soon afterwards, however, made water, and was easy. There being no soreness, inflammation, or perceivable obstruction, the little rising on the side of the meatus being directed for-

wards, I suspected that the vessels of the part might remain somewhat relaxed in consequence of the previous inflammation, and therefore, discontinuing the dressing, threw some cold water on the part with a syringe, and afterwards a very weak solution of white vitriol in water, which, producing no uneasiness, I ordered to be repeated twice or thrice a day.

On the 4th I was informed that she had had a stool the preceding afternoon, and another that morning, when she had likewise passed some urine; that soon afterwards the suppression returned, and she appeared to suffer more pain than on the day before, but that it went off in about three hours.

Being now satisfied that, whether the caustic, costiveness, &c., had at all contributed to the suppression or not, its returns must be owing to some other cause, and considering its returning first in three or four days after the use of the catheter, then in forty eight, and now in twenty-four, hours, without the use of the catheter, I supposed it to be most probably a stricture of the extremity of the urethra. I mentioned this to the friends of the patient the next day, (the 5th) and recommended the use of the bougie; to which they were averse, and hoped there would
be

be no occasion for it, as she was now pretty well. While I was talking with them my patient began to find a return of the suppression, and drinking freely of barley water, in hopes of removing it, the bladder filled apace, and in about two hours the pain became very great, and the pudenda began to swell. Recourse was again had to the semicupium, in which she sat ten minutes, and was easy; but the pain returned as soon as she came out. I would have introduced the catheter immediately, but from her dread of it was obliged to decline it. I threw up some oil and opium into the rectum, which was immediately rejected. The bladder was now distended to the navel, the external parts prodigiously swelled, and her pain so excessive, that her aversion to the catheter abated. Presently afterwards, as I was about to order the semicupium, which I intended to use again previously to the introduction of the catheter, she was sensible of a little urine escaping; in a little time the bladder emptied itself, and she was easy. Flannels wrung out of warm water were applied to assist the subsiding of the swelling of the pudenda, which went quite off in about half an hour. I now urged the necessity

of using the bougie; to which, after some hesitation, the friends consented. A small one was introduced almost without her knowledge, and secured from slipping; and directions were given for its farther use.

She kept the bougie in the urethra two hours the first day; and on the next two days, when larger ones were used, three or four hours. It was afterwards introduced in the evening after she went to bed, and removed in the morning before she arose, and in this manner continued about a week. It was then used every other night, and lastly twice a week to the end of the month, when it was omitted. During the use of the bougie she, at first, had pretty frequent calls to make water, and afterwards was obliged to make water almost immediately upon the inclination coming on, which symptom went quite off in about a fortnight after the bougie was laid aside. From the day she began the use of the bougie she had not the least return of the suppression of urine. On the 12th she rode out on horseback with a pleasure she had till then never known, as, before the removal of the fungus, the most gentle pace of the horse gave her pain. Being somewhat re-

duced

duced by the pain and confinement she had suffered, she then took a decoction of bark. She soon recovered her strength; and it was afterwards observed that she grew faster than she had done before the operation. Five years afterwards she had not perceived the least complaint in the urethra; and I have reason to believe that she has felt none to this day.

I had an opportunity of speaking to the surgeon who was first consulted in this case. He informed me that, when he saw it, it was a small, smooth, round, protruding body, with a hole in its middle, and was reducible by the finger; and that, from its appearance, and from her mother's account of its being first observed after taking the purge, he supposed that what he saw was the os internum, the uterus being, as he imagined, forced down into the vagina: he acknowledged, however, that it would slip down by the side of the cork he had advised to be worn as a pessary.

REMARKS.

Excrescences from the orifice and from the canal of the female urethra, some of which
last

last have acquired such a size as to protrude through the meatus urinarius, are related by authors*; in most of the instances of which the patients suffered symptoms similar to those excited by a stone in the bladder. Morgagni† has also mentioned two instances where he found, on examining, for other purposes, the bodies after death, a projection of a portion of the internal membrane of the urethra, similar to that of the vagina or rectum. Whether or not the subjects of them suffered any inconvenience from the projection during life he was unacquainted: it would seem, from the circumstances he has mentioned, not to have been great. But I have not met with an instance upon record of the whole extremity of the urethra expanded into a fungous excrescence, like that I have above related; nor has another such since occurred in my practice. Whether it was formed like the two just alluded to is

* Morgagni, *De Sedibus & Causis Morborum*, ep. 42; art. 42.—Sharpe, *Critical Inquiry*, p. 162.—Warner, *Cases in Surgery*, third edition, case 45.—Bromfield, *Chirurg. Obs.* Vol. II. p. 296. — Jenner, *London Medical Journal*, Vol. VII. p. 160.

† Place cited; and ep. 50, art. 51; ep. 56, art. 21.

perhaps

perhaps uncertain ; but the account given of its first appearance, and the examination after its removal, seem to render it probable.

From the history of the above case may be learned, first, How the surgeon who was first consulted, and whose anatomical knowledge might be supposed sufficient to guard him against such a deception, was led into the error of mistaking the orifice of the urethra for that of the uterus, which should teach us caution in making our inquiries, and candour to make allowances for the errors of each other, whilst “ *humanum est errare.*”

Secondly, The young surgeon, who has not met with better opportunities, may be enabled to form some judgment of the exertions of the bladder to overcome an obstruction to the egress of the urine.

Thirdly, There cannot be a doubt that, had a tent been introduced into the urethra immediately after the operation, and continued, at proper intervals, for perhaps a fortnight or three weeks, the suppression of urine, the only disagreeable circumstance that occurred, might have been prevented. I declined using it, partly from Mr. Donne’s opinion, and partly from
considering

considering the analogy of the operation, with respect to the urethra, to the amputation of the penis; in some cases of which * none was used, and by which perhaps I was more influenced than by the instance which fell under the notice of Le Dran †, in which, from the want of a canula, a suppression of urine succeeded the operation.

If it should be thought a matter of indifference whether a silver canula, or a common or hollow bougie, had been used, I would beg leave to observe, that, in my opinion, a silver canula would have been less likely to have increased the inflammation of the urethra consequent to the operation, and proved most convenient for the first two or three days; after which the common bougie might have been used. Perhaps, at this time, a canula made of elastic gum would be preferred to the silver one, or might serve the purposes of both canula and bougie.

Fourthly, Does not the above case point out the propriety of the use of the warm bath,

* Warner's Cases, case 39.—Gooch's Cases and Remarks in Surgery, second edition, p. 271.

† Treatise of Operations, English translation, p. 158.

immediately

immediately previously to the introduction of the catheter, in all cases where the urine is required to be drawn off, in which the canal of the urethra is straightened by inflammation or spasm?

Stroud Water,
August 5th, 1791.

V. *Case of Emphysema, brought on by severe Labour Pains. Communicated in a Letter to Dr. Simmons by Mr. R. B. Blagden, Surgeon at Petworth in Sussex.*

IN November, 1779, I was a witness to a case of emphysema, brought on by severe labour pains. As nothing of the kind has since fallen within my observation, and as I find from a paper of your own, in the first volume of the Medical Communications, that these cases are extremely rare, I offer you, with some little confidence, for the next volume of Medical Facts and Observations, an account of it, drawn up at the time when it happened.

The subject of this case was a small woman, twenty-five years of age, and this her first labour.

bour. The whole pelvis (and the arch of the os pubis in particular) approached to that of the male, and the external parts were remarkably small and rigid. Notwithstanding the most violent and quickly-repeated pains, the child was not expelled till full seven hours after the complete dilatation of the os uteri; its head was wonderfully elongated, and all the means of recovery were ineffectual.

In the moment of its expulsion the woman, with inexpressible terror, exclaimed, “ I shall “ be suffocated.” I hastened to the other side of the bed, when I was struck with her appearance, which was entirely altered, her face, neck, and breasts, being inflated to an amazing degree.

The emphysema of the upper and fore part of the neck made, on pressure, the crackling noise which characterises this affection; but the emphysema of the face and the breasts was perfectly hard and unyielding.

I instantly bled her freely, which immediately relieved the sense of suffocation, and in some measure diminished the inflation of the face: she was, nevertheless, unable to open her eyes till the fourth day.

The

The whole swelling subsided very gradually, and was entirely gone in about a week, but the crackling noise was plainly felt, for nine or ten days, just below the clavicles; indeed there was air, in small portions, perceivable in the cellular membrane of the arms for many weeks afterwards.

Friction with oil was recommended from the moment of the attack.

The placenta came easily away in about half an hour after the blood was drawn: the patient took a gentle purge on the second day after delivery, and another on the fourth; she had no milk fever, nor any other symptom to retard her recovery.

If the bleeding had not given such instant relief, the urgency of the symptoms would have led me to attempt it, without loss of time, by incision, as practised by the late Dr. Hunter (and long before, in an instance related by Paré) in a case of emphysema described in the second volume of *Medical Observations and Inquiries*.

It afterwards appeared that my patient had, for some hours, buried her face, during every pain, in the woollen coat of a woman who sat on the side of the bed.

I beg

I beg leave to observe, that I have since attended the same person in three labours, and that, although they were all of the laborious kind, nothing emphysematous occurred in either of them.

Petworth,

August 30th, 1791.



VI. *An Account of the spontaneous Cure of an Aneurism. By the Same.*

A Tall, muscular man, about fifty years of age, was unfortunate enough to have the artery wounded in the opening of the basilic vein in June, 1788. After a very large quantity of blood had escaped *per saltum*, a considerable degree of pressure was made on the orifice, and the blood was staid. There was an ecchymosis that extended from the shoulder to the wrist. A tumour, which had a strong pulsation in it, immediately began to be formed, and continued to increase till it equalled the size of a common cricket ball, and the limb at the same time grew (to use his own words) painfully lifeless.

It

It had been told him that nothing but an operation could give a chance of preserving his arm; but as he had formerly lived near Petworth, and had been a patient of mine, he chose to show me the case before he came to a determination concerning it.

When I saw him, it was about six months after the accident had happened, and I received from him the above account.

On examination, I found the tumour very nearly as he had described it, somewhat less indeed than a cricket ball, but hard, and with a strong pulsation in it. The arm was shrunk and cold, and the wrist entirely pulseless.

The patient having repeatedly assured me that the tumour had been somewhat larger, and the pulsation still stronger, I did not hesitate to dissuade him from the operation, at least for the present.

I recommended the constant use of the flesh brush only to the whole arm, and desired to see him regularly every fortnight.

Within a few weeks the arm grew a little warm; in about three months I could perceive a tremulous kind of motion at the wrist; the tumour very gradually diminished in size, its pulsation grew weaker, and the motion at the

wrist stronger in the same proportion; the hardness of the tumour likewise increased as the tumour itself became less, so that when it was diminished to the size of a small apple, it was perfectly incompressible: indeed in this situation it was so long stationary, that I began to doubt whether it would ever vary from it; but within the last eight or nine months even this extreme hardness has gradually abated, and the decrease gone on, till the tumour is become no larger than a full-sized hazel nut, and not harder than a steatoma. The pulse too is now as strong in that arm as in the other; the arm itself is as large, and the power of using it, unless on very laborious occasions, (which he is cautioned to avoid) nearly equal*.

It is too evident to admit of any doubt that the circulation is principally carried on in its usual course through the artery, and not through the capillary and anastomosing branches of it.

This case may perhaps be thought to add some little weight to two of the conclusions

* This account, which was written about three months ago, (when I last saw the arm) is confirmed by another which I received on the 22d of this month.

drawn by Mr. Ford in his excellent paper* on the same subject, “that nature is capable of effecting the cure of aneurisms solely by her own efforts, and that the cure by nature is a permanent one :” but although I am unable to form a satisfactory idea of the manner in which nature has so completely effected the cure in the present instance, I still hope the case may not be altogether unworthy of regard ; for I confess myself of Mr. Watson’s opinion †, that the history of the disease is not complete, and that every aneurismal tumour will be found to have its peculiarities, and of course may afford useful information.

Petersworth,

October 27th, 1791.

* London Medical Journal, Vol. IX. page 255.

† Medical Communications, Vol. I. page 282.

VII. *Some Remarks on the Angustura Bark. Communicated in a Letter to Dr. Simmons by Mr. George Wilkinson, Surgeon at Sunderland, Member of the Royal College of Surgeons and honorary Member of the Chirurgo-physical Society of Edinburgh, &c.*

MORE than a year having elapsed since the date of my former letter * to you on the Angustura bark, and the numerous trials I have since made of it, together with the liberal communications of several of my medical friends, having enabled me to speak more decisively of its effects, I take the liberty of communicating to you the following additional remarks on the subject :

These remarks would have been more extended, had I not been anticipated in much of what I might otherwise have said, particularly with respect to the chemical history of this drug, by Mr. Brande, in his valuable essay on the Angustura bark lately published.

I had made several experiments to ascertain the properties of this bark before Mr. Brande's

* See the London Medical Journal, Vol. XI. p. 331.

work was announced, and I have since repeated many of those he has described; but as my results have been nearly similar to his, it seems unnecessary to relate them. I shall, therefore, content myself with collecting from my notes such detached facts and observations relative to this new remedy as may serve still farther to ascertain its properties, its effects in different diseases, and the doses and modes of exhibition in which it succeeds the best.

The taste of this bark, which is a powerful bitter, has been compared, by many to whom I have shewn it, to Columbo root, to camomile, and to Cascarilla bark; yet in its chemical properties it differs in many respects from either of those substances. In its sensible qualities it may be said, in some degree, to resemble the Peruvian bark; though, from experiments, it would seem to be superior to it in its antiseptic powers.

I have been at much pains to render the Angustura bark more agreeable to the palate by covering its taste with different aromatics, such as lemon and Seville orange peel, cloves, cardamoms, nutmegs, compound tincture of lavender, and cinnamon. The two first may be used with it, to great advantage in this respect, in infusion; cloves or cardamoms seem only to add

to its pungency ; while the three latter, particularly cinnamon, render it more grateful to the stomachs of most patients.

The mildest form in which it can be administered is that of a cold infusion ; next to this follows the warm infusion ; but so partially does it give out its properties in these forms, that the same bark boiled (though infused before) in a pint of water to two thirds makes a decoction much superior in strength to either of the infusions.

Alkaline and neutral salts render this bark less agreeable to the palate.

Acids, particularly the vitriolic, by precipitating its gummy and resinous parts, diminish its pungency. Thus combined it may be better adapted to some stomachs ; and resembles the camomile infusion when united with the vitriolic acid.

With Port, Lisbon, and most other wines, if we except Mountain, Frontiniac, and Raisin, this bark is not very pleasant ; the three latter, but particularly raisin wine, have in general been found to be most agreeable. Particular instances will sometimes, though not often, occur where wine in general may disagree : in all cases, however, I have found it much better to dilute

dilute the wine with an equal proportion of water.

In some cases, as in diarrhœa, dysentery, &c., where the stomach and intestines are extremely irritable, so as to eject this and other medicines, it may require a suitable addition of opium; but in general it will be found to agree best in the simplest form, and to fit much better on the stomach than the Peruvian bark, or any other bitter, provided it be given in a proper dose, which even in adults I have seldom increased to more than thirty grains, commonly beginning with from ten to twenty grains of it at a dose.

What has been observed respecting the simple mode of administering it has been confirmed to me by Dr. Collingwood, of this neighbourhood, who, in most of his trials of this bark, has exhibited it in powder, and that in the most simple form.

The good effects I had formerly experienced from the use of this bark in two cases of intermittents*, encouraged me to try it in others that have since occurred.

* London Medical Journal, Vol. XI. page 336.

The first of these took place in September, 1790; the subject of it was a man, thirty two years of age, who was seized with the usual symptoms of fever, accompanied with head-ach, slight sickness, and costiveness. Antimonials were given, in small doses, at proper intervals, and at the end of about twenty hours his fever went off. On the third day he was attacked with shivering, succeeded by the usual symptoms of an intermittent. An emetic was now prescribed: his costiveness was removed; and he took the Peruvian bark, in substance, in doses of two scruples, every three hours, mixed with two or three table-spoonfuls of a decoction of the same. He had one fit afterwards, having then taken three ounces of the bark in powder, and nearly the same quantity of it in decoction. The use of it was continued, in less frequent doses, for a fortnight, and he then thought himself recovered. At the end of the third week, however, he was again seized with a rigor and hot fit. The Angustura bark was now administered, in powder, in doses of from twelve to fifteen grains, in a small quantity of raisin wine and water, at the same periods as the Peruvian bark had been. He never had another fit afterwards, and the whole of the
quantity

quantity given was just three drachms and a half.

To another patient who fell under my management, and whose case was also a tertian, nearly similar, though less violent than the last-mentioned one, no other medicines were used excepting some mild antimonials, and a gentle purge given previously to the use of the Angustura bark, of which he took half an ounce, in powder, in doses of from twelve to fifteen grains : he had three fits prior to his taking it, but afterwards remained quite well.

In a third case of a tertian, the subject of which was a female, twenty-eight years of age, this bark proved less efficacious ; for though it seemed to put a stop to the fits after having been taken, in substance, to the amount of a dozen doses of twelve grains each, yet notwithstanding the quantity was increased to three grains more, the fits again recurred, and the medicine was laid aside after she had taken six drachms of it. This patient, who was subject to obstinate costiveness, (on account of which a purgative medicine was administered previously to the use of the bark) had impaired her health by the too frequent use of spirits, and took the bark in a very irregular manner, so
that

that it could hardly be said to have had a fair trial. The fits afterwards yielded to the use of the arsenical solution, but her general health was not till some time after restored.

Mr. Akenhead, surgeon, of this town, has communicated to me the following account of the good effects of this bark in a tertian ague:

“ Some time in July last a robust man, thirty-six years of age, in consequence of exposure to cold from getting wet, was attacked with an intermittent. Before I saw him he had been ill for several days, and had had three or four fits, which recurred every other day. After having administered an emetic of ipecacuanha, I was induced to make trial of the Angustura bark, which I gave him in decoction with a small quantity of compound tincture of lavender, and in doses of three table-spoonfuls every three hours. He had but one fit afterwards, and was perfectly cured; having taken in the whole only a pint and a half of the decoction.”

Repeated experience alone can enable us to decide with precision on the comparative effects of the Angustura and Peruvian barks in fevers. I have not had many opportunities of this sort

since I became acquainted with the *Angustura* bark; but in three cases of typhus that have come under my observation, in the beginning of this year, I can truly say, the effects of this bark have by no means fallen short of the Peruvian. One of them was the more remarkable, as the patient at the time of my using it was in a very hopeless state. His age was sixty-four years, his occupation sedentary, and he was of a studious turn of mind. For two or three days prior to my visiting him he had laboured under languor, decrease of appetite, slight thirst, nausea, and head-ach. His pulse, when I first saw him, was quick, feeble, and somewhat irregular; his tongue foul, his skin dry, and his belly costive. A gentle laxative was at first exhibited, and after this mild antimonials, but with no apparent benefit. Wine and other cordials were next had recourse to, and by these he seemed to be somewhat relieved till about the ninth or tenth day, when he was seized with a diarrhœa. Opiates and other remedies were now administered, but to no purpose. His skin felt cold to the touch; his pulse sunk, and his strength seemed to be nearly exhausted. In this alarming state I re-

solved

solved to try the effects of the Angustura bark. The following form was used :

R. Infus.* cort. Angusturæ ʒvj.

Tincturæ * ejusdem ʒs.

Pulv. ——— ʒj.

Tincturæ opii guttas xx.

——— — lavend. comp. gutt. xl. M.

Of this mixture three table-spoonfuls were given every four hours. The first dose gave him great relief, and the next day I found his diarrhœa quite gone, his skin warm and moist, and his desire for food returning. He took a proper supply of nourishment, and at the end of four days was capable of sitting up; the mixture was continued, and he very soon regained his health.

In the two other cases, the subjects of which were females, the symptoms of fever were more strongly marked; the general plan I adopted in these consisted in the exhibition of antimonials, at first, in a dose sufficient to excite vomiting, and afterwards in smaller doses as relaxants, with a gentle laxative occasionally. To one of these patients the Angustura bark, in powder, was given, in doses of fifteen grains

* See London Medical Journal, Vol. XI. page 333.

in a glass of white wine and water, every four hours after the first intermission, or rather remission, that I could perceive, and which happened on the fourth day. The same remedy was afterwards continued, and the patient recovered in a few days. In the other case, which was treated nearly in a similar manner, at the beginning, as the former, a remission took place on the third day, and the decoction of Angustura bark being then given, put a stop to the disease.

Four cases of fever in lying-in women have occurred to my notice. All of these assumed the form of remittents or quotidians, and in all of them this bark was used with great success. It was chiefly given in infusion or decoction, combined with the saline mixture, during the remissions, and sometimes accompanied with the tincture and a small quantity of the powder. In each of these cases the symptoms of fever began to subside soon after I had recourse to this remedy, and its use was continued till a complete recovery was effected.

One of these patients, and the first that fell under my management, was my sister, a person of an irritable habit, who had much fever, accompanied with delirium. She had never, at
any

any time, been able to relish the Peruvian bark, but took this very readily and without inconvenience.

Another patient, with whose stomach this bark disagreed, by inducing an uneasy sensation of heat, took it afterwards by combining with its infusion a portion of magnesia.

In diarrhœas this bark, so far as I can judge from my own trials of it, seems to stand unrivalled by any other medicine of the same class that has hitherto been discovered.

I could relate several cases of recent as well as chronic diarrhœa in proof of this, were not the fact already so satisfactorily established by the instances given by Mr. Brande from his own experience, and that of Dr. Willan, of its efficacy in complaints of this kind. I flatter myself, however, that the insertion of the two following cases, communicated to me by two respectable medical friends, will not be unacceptable to you.

The first of these is from Mr. Salkeld, surgeon at Durham. The patient was a child, four months old, who had a diarrhœa, of several days standing, accompanied with gripes and bloody stools. About four grains of the *Angustura bark*, in powder, were directed to be
given,

given, at proper intervals, in a spoonful of cinnamon water. After the second dose the appearance of blood in the stools ceased, and in about two days, by persevering in the use of the medicine, the complaint was completely removed.

For the other case I am indebted to Dr. Collingwood, whose account of it is as follows:

“ A married woman, twenty-five years of
 “ age, was attacked, three weeks after delivery,
 “ with a diarrhoea. Various remedies of the
 “ tonic and astringent class were employed,
 “ from some of which she experienced good
 “ effects, but none of them afforded her per-
 “ manent relief. She continued in this state,
 “ better and worse, till six months had elapsed;
 “ and as the disease still remained, I advised
 “ her to wean the child: this was complied
 “ with, but no good was produced. To re-
 “ peat the variety of means, both of medicine
 “ and diet, that were adopted, would be tedi-
 “ ous. Every thing seemed in vain; for, after
 “ a period of ten months from its commence-
 “ ment, the complaint had reduced her to an
 “ extreme extenuation and debility of body;
 “ her appetite was depraved; her eyes appear-
 “ ed sunk; her complexion was quite fallow;
 “ her pulse quick and weak; and her stools
 “ frequently

“ frequently amounted to the number of
 “ twelve, fourteen, and latterly to twenty or
 “ more, in the space of twenty-four hours.
 “ When you gave me some of the *Angustura*
 “ bark, I must confess that, before I tried it, I
 “ despaired of its succeeding in this case. The
 “ event, however, agreeably disappointed me.
 “ I began by the exhibition of an emetic of
 “ ipecacuanha, several of which had been ad-
 “ ministered before. She then took ten grains
 “ of *Angustura* bark, in powder, in rice water,
 “ after every stool. The very first dose re-
 “ lieved her, and when she had taken five the
 “ diarrhœa seemed to cease, and she recovered
 “ by the repetition of a few more doses, the
 “ whole of which amounted to a dozen. Her
 “ appetite and digestion soon improved, and at
 “ the end of three weeks she was perfectly
 “ cured.”

In that species of diarrhœa occasioned by the
 quick absorption of the adeps in children, and
 which is frequently the consequence of denti-
 tion, though it sometimes proceeds from other
 causes, such as obstruction of the mesenteric
 glands, &c., this bark has proved useful, par-
 ticularly in cases where the complaint seemed
 to depend on a state of morbid irritability con-
 nected

ned with teething. In most of these cases there is more or less of pyrexia, accompanied with depraved appetite, thirst, nausea, and sometimes vomiting. I have, therefore, generally administered a mild emetic of ipecacuanha previously to the use of the Angustura bark in such cases ; and where there was reason to ascribe the complaint to visceral obstruction I have given, during its use, occasional doses of calomel.

And here I may observe, that this bark is, for several reasons, preferable to the Peruvian as a medicine for children : they take it much more readily than they do the latter ; and it is less apt to disagree with the stomach and run off by the intestines, which the Peruvian bark is too apt to do from the large doses that are necessary to produce a decisive effect.

In the true dysentery I have had an opportunity of trying it only in one case, of a patient who had taken a variety of remedies without any permanent good effect. At the time I first saw him he had a considerable degree of pyrexia, with frequent gripes, and mucous stools intermixed with more or less of blood. By the use of the Angustura bark his gripes and evacuations soon ceased ; his appetite returned ;

the symptoms of fever left him, and he gradually recovered.

The frequent failure of the Peruvian bark (particularly when given in substance or decoction) in dyspepsia, has induced many practitioners to combine it, in such cases, with a number of other ingredients of the bitter class; and among those we may enumerate the late Professor Whytt, of Edinburgh, who was often under the necessity of laying it aside, and depending on that efficacious and elegant preparation, his tincture, or on the warmer bitters alone *. In cases of this kind the Angustura bark will be found to have great efficacy, as I can assert from my own experience, having administered it with success in numerous instances where the Peruvian bark, and other medicines of the bitter class, had failed.

The testimony of several of my medical friends, who have tried it in such cases, is also strongly in its favour: my friend Mr. Akenhead, for instance, observes to me, that “ he
“ has given it a trial in several cases of indi-
“ gestion with the best effects; and that al-

* Observations on nervous Disorders. 3ve. Edin. 1765.
pages 328 and 372.

“ though he has long been in the habit of ta-
 “ king the Peruvian bark, and other bitters,
 “ for a similar complaint, to which he is often
 “ subject, yet from the benefit he has lately
 “ derived from the Angustura bark, and the
 “ ease with which it sits on his stomach, he
 “ cannot but give it the preference :” and from
 Mr. Salkeld I learn, that “ in a case of dys-
 “ pepsia, from an immoderate use of spirits,
 “ in which the Peruvian and Quassia barks, Co-
 “ lombò root, and other remedies, had been
 “ tried during at least three months, without
 “ the least advantage, the patient experienced
 “ almost immediate relief from fifteen grains
 “ of the Angustura bark administered twice a
 “ day.” In this case the dose was afterwards
 increased to twenty-five grains, which sat easy
 on the stomach, and by persevering in the use
 of the medicine the patient gradually reco-
 vered.

These effects of the Angustura bark confirm
 the opinion entertained of it by Dr. G. Pearson,
 who, though unwilling to allow it equal effi-
 cacy with the Peruvian bark in the cure of in-
 termittents, considers it “ as a medicine that
 “ will produce the effects of the warm vege-
 “ table bitters, especially of the camomile, but

F 2
“ with

“ with more efficacy, and more agreeably to
 “ the stomach; and that it will consequently
 “ render all the other articles under the head
 “ of *amara calida* unnecessary *.”

In cases of debility, or increased irritability, whether apparently proceeding from a diminished tone of the stomach, or from local affections of certain parts, the Angustura bark has appeared to me to produce effects similar to those of the Peruvian bark, but with these advantages, that the effects were more immediate and sudden, and the doses much smaller than those usually given of the latter bark. Hence I have employed it with much satisfaction in scrophulous affections; in violent accidents producing inflammation, symptomatic fever, weakening discharges, &c.; and after some of the greater operations of surgery.

In these cases I have sometimes alternately administered both this and the Peruvian bark to the same patient. To me the evidence has constantly appeared to be in favour of the Angustura; and every patient who took it, whe-

* See a letter from Dr. Pearson to Mr. Brande, annexed by the latter to his Experiments and Observations on the Angustura Bark.

ther first or last used, preferred it, assuring me they found from it more benefit.

In certain complaints, more especially venereal cases, where the indiscriminate and oftentimes improper use of mercury seems to produce more dreadful effects than even the disease itself, I have given this bark with great advantage. -

A gentleman who laboured under a lues venerea, though not accompanied with secondary symptoms, had rubbed in and taken considerable quantities of mercury for the space of about two months. When I first saw him he appeared greatly emaciated; had an ulcerated mouth, with profuse spitting, hectic heat, thirst, loss of appetite, and diarrhœa, accompanied with griping. He had then been for some time taking opium and Peruvian bark, but without any apparent benefit; for he got little or no sleep, and the ulcers in his groin were very painful, and looked unpromising.

Laying aside his other medicines, I advised him to take, at bed time, ten grains of the Angustura bark, in powder, in a little raisin wine and water, which dose was repeated towards morning. At the same time I recommended to him a more generous diet than he had of late

been accustomed to, together with a moderate use of wine. The good effects of this mode of treatment were soon conspicuous; for the very next day he began to have a return of appetite; his diarrhœa and other unfavourable symptoms soon began to leave him; the ulcers took on an healing disposition; his strength of body returned very fast; and he gradually recovered.

Mr. Salkeld has mentioned to me the effects of this bark in a case of whooping cough. To a girl, six years of age, who had been affected with this disorder so much as to produce considerable hæmorrhages from the nose and ears, after having prescribed for a month, without effect, a mucilaginous mixture of emetic tartar and oxymel of squills, so as to keep up a gentle nausea, he ordered an infusion of the Angustura bark, to four ounces of which were added thirty drops of the tincture of cantharides. Of this mixture a table-spoonful was directed to be taken three or four times a day. After taking a few doses the child was much better, and, to use her mother's words to Mr. Salkeld, "hardly ever coughed afterwards." The medicine was continued, and the child soon got quite well.

Mr.

Mr. Salkeld has found it very efficacious in a case of scrophulous ophthalmia, which had resisted the use of blisters, leeches, and a variety of other remedies, external and internal. A decoction of the Angustura bark was applied as a wash, and cloths dipped in it were kept upon the eyes at night. In twenty-four hours the patient was able to look up, and bear the light, which he had not been able to do for near a month before. The application was continued, and he soon got well.

I myself have since tried it in a girl, twelve years of age, who had a similar complaint, from the same cause, in both eyes. At the time I first saw her she had been almost blind for five weeks; I directed her to apply the infusion to her eyes in the same manner Mr. Salkeld's patient had done, and in three days, without the use of any other remedy, she was able to bear the light, and in a short time was perfectly cured. To this account of its effects, as a topical application, I am able to add, that it has been used as a fomentation in a case of partial gangrene produced by an accident, and with evident advantage, as it soon corrected the factor.

In ill-conditioned ulcers, also, the powder of this bark has been found of excellent use, by acting as a mild escharotic ; and a strong decoction of it, applied as a wash, to sores of this description, has been found of considerable service.

Before I conclude this letter I must beg leave to observe to you, that in every case in which I have administered this bark I have been anxious to give it a fair trial ; and with this view have never combined it with any other powerful remedy, or with substances that could at all influence its effects, except by rendering it perhaps more agreeable to the stomach. The results of my own experience of its effects are faithfully related ; the communications concerning it, with which I have been favoured by my medical friends, who are men of great accuracy and candour, are given nearly in their own words ; and I trust that the trials of others will tend to confirm what has been advanced relative to this new remedy, which I cannot but consider as a valuable addition to the *Materia Medica*.

Sunderland,
October 4, 1791.

VIII. *An*

VIII. *An Account of two Cases of Polydipsia, or excessive Thirst.*

ALMOST all the modern nosologists have introduced into their systems a disease to which, on account of the excessive thirst that forms its characteristic symptom, they give the name of Polydipsia; but in none of the examples of it they have been able to collect does it appear to have been idiopathic; and Dr. Cullen expressly says that it is almost* always symptomatic. A very curious instance, however, of such an affection, apparently depending on a peculiarity of temperament, or what is called *idiosyncrasy*, occurs in a woman now living at Paris, of whose case the first account was given, by M. Besséjon de la Chassagne, in

* The words "*polydipsia fere semper symptomatica est*," used by Dr. Cullen, might lead the reader to imagine that he had *sometimes* seen it exist as an idiopathic disease; but the varieties he mentions of it, viz. Polydipsia febrilis, polydipsia hydropica, polydipsia fluxuum, and polydipsia a venenis, are all of them collected from M. Sauvages as instances of symptomatic affection: he gives no example of it from his own experience. — See Synopf. Nosol. Meth. 8vo. Edin. 1785. Tom. II. p. 320.

a letter which we shall here translate from the
Paris Journal of May 1, 1789.

“ *To the Authors of the Journal* *.

“ Paris, April 18th, 1789.

“ GENTLEMEN,

“ You will interest equally the humanity and
“ curiosity of the Public, by inserting in your
“ Journal

* “ *Aux Auteurs du Journal.*

“ A Paris, ce 18 Avril, 1789.

“ MESSIEURS,

“ Vous interesserez également l’humanité & la curiosité,
“ en inserant dans votre Journal l’anecdote suivante qui pa-
“ roîtra, sans doute, un phénomène. Je me suis assuré avec
“ l’exactitude la plus scrupuleuse des faits que j’annonce ici ;
“ mais je laisse aux lecteurs d’en expliquer la nature & la
“ cause.

“ Catherine Bonsergent a été remarquée dès l’âge le plus
“ tendre. Une soif brûlante, une alteration sans exemple,
“ dont elle est continuellement tourmentée depuis sa naissance,
“ ont toujours fixé sur elle l’attention des observateurs. Ses
“ parens, après en avoir confié les premiers soins à une nour-
“ rice, la retirèrent auprès d’eux à sa troisième année. Ils
“ trouvèrent bientôt extraordinaire la consommation d’eau
“ qui se faisoit dans leur maison depuis quelque tems, lors-
“ qu’enfin ils s’appercurent que leur enfant en buvoit près
“ de deux seaux chaque jour. Ils attribuèrent d’abord à une
“ mauvaise éducation ce qui étoit en effet chez elle un besoin
“ surprenant,

“ Journal the following anecdote, which, with-
 “ out doubt, will be considered as a phenome-
 “ non. I have assured myself, with the most
 “ scrupulous accuracy, of the facts which I
 “ announce, but I leave to the reader to ex-
 “ plain their nature and cause.

“ Catherine Bonsergent has been remarked
 “ from her tenderest years. A burning thirst,
 “ a drought without example, with which she
 “ has

“ surprenant, mais naturel. En vain ils ont voulu la corri-
 “ ger de ce défaut par des caresses ou des menaces, en lui re-
 “ fusant ou lui diminuant la quantité d'eau qu'elle buvoit ;
 “ ils ont été bien plus surpris encore de la voir chercher se-
 “ crètement tous les moyens de pouvoir se satisfaire ; en été
 “ avec la première eau qu'elle pouvoit se procurer, en hiver
 “ avec de la neige & des glaçons, & toujours elle avoit soin
 “ de se réserver de quoi boire abondamment pendant la nuit.

“ Les mauvais traitemens que ce besoin lui attiroit de ses
 “ parens l'ont obligée de les quitter. Elle est venue servir à
 “ Paris chez des maîtres plus indulgens à qui elle n'a pu se
 “ cacher ; mais sa bonne conduite a mérité d'eux de n'en re-
 “ cevoir aucuns reproches.

“ A l'âge de 22 ans elle s'est mariée avec le nommé Fery,
 “ faveur, à qui elle a déguisé son défaut pour l'épouser.
 “ Elle a eu de lui huit enfans ; il lui en reste trois, & elle est
 “ enceinte d'un neuvième. Ce qui paroît surtout extraordi-
 “ naire, c'est qu'au moment de ses couches, au lieu d'user
 “ d'alimens & de liqueurs qui sembleroient plutôt devoir la
 “ fortifier,

“ has been continually afflicted from the time
 “ of her birth, have always fixed on her the
 “ attention of persons of observation. Her
 “ parents, after having entrusted the first care
 “ of her to a nurse, took her home when she
 “ was three years old. It was not long before
 “ they observed that an extraordinary quantity
 “ of water was consumed in the house, and at

“ fortifier, elle préfère pour contenter sa soif, qui est alors
 “ plus brûlante, de boire, presque sans interruption, trois ou
 “ quatre pintes d'eau la plus fraîche. Dans les rigueurs de
 “ l'hiver dernier, cette femme enceinte a bu jusqu'à deux
 “ voies d'eau en 24 heures; & son mari, ne pouvant fournir
 “ à cette dépense, étoit obligé de ramasser de la neige & des
 “ glaçons qu'il faisoit fondre. L'eau, qui s'est vendue six
 “ sols la voie, lui coûtoit plus qu'il ne gagnoit de son tra-
 “ vail.

“ Cette femme n'a jamais fait usage d'aucunes fortes de
 “ liqueurs fortes, & s'il lui arrivoit seulement de boire un
 “ verre de vin, elle éprouveroit un faiblissement dans tous ses
 “ membres, & on croiroit la voir tomber en syncope; d'ail-
 “ leurs elle n'est pas hidropique, elle jouit même d'une assez
 “ bonne santé, elle rend naturellement toute l'eau qu'elle
 “ boit; mais ce qui paroît surprenant encore, c'est que cette
 “ eau est d'une fécondité extraordinaire. Cette femme de-
 “ meure Hôtel des Arts, F. St. Martin.

“ Signé

BESSEJON DE LA CHASSAGNE,

“ Prêtre de St. Laurent.”—Jour-

nal de Paris, 1 Mai, 1789.

“ length

“ length they discovered that their daughter
 “ drank, every day, to the amount of nearly
 “ two pailfuls. At first they attributed to im-
 “ proper education what in reality was the
 “ effect of a surprising, though natural, appe-
 “ tite. It was to no purpose that they at-
 “ tempted to correct this defect by caresses or
 “ threats, by denying her water, or lessening
 “ the quantity of what she drank; and they
 “ were still more surprised to see her secretly
 “ availing herself of every means to satisfy
 “ her thirst. In summer she drank the first
 “ water she could meet with, in winter she had
 “ recourse to snow and ice, and she was always
 “ careful to reserve as much as would enable
 “ her to drink abundantly during the night.

“ The ill treatment this disposition occa-
 “ sioned her to experience from her parents,
 “ at length, obliged her to quit them; and she
 “ came to Paris and lived as a servant with dif-
 “ ferent families, who were more indulgent to
 “ her; for although the infirmity in question
 “ was not to be concealed, her good conduct
 “ in other respects secured her from reproach.

“ At the age of twenty-two years she mar-
 “ ried one Fery, a cobbler, from whom she con-
 “ trived to conceal her complaint till after
 “ their

“ their marriage. She has had by him eight
 “ children, three of whom are still alive, and
 “ she is now pregnant with a ninth. What
 “ appears particularly extraordinary is, that,
 “ during her lyings-in, instead of having re-
 “ course to such food and liquors as would
 “ seem to be most likely to strengthen her, she
 “ chuses rather, for the sake of satisfying her
 “ thirst, which at those times is more intense,
 “ to drink, almost without interruption, three
 “ or four quarts of the coldest water. Du-
 “ ring the severe cold of last winter this wo-
 “ man, who was then pregnant, drank to the
 “ amount of four pailfuls of water in twenty-
 “ four hours; and her husband being unable to
 “ afford the expence of such a consumption,
 “ was under the necessity of supplying her with
 “ melted snow and ice. The price of a load
 “ (two pailfuls) of water, at that time, was
 “ six *sols*; and the quantity she required would
 “ have cost him more than he earned by his
 “ work.

“ This woman has never made use of any
 “ sort of strong liquors, and if she drinks
 “ only a single glass of wine she feels an un-
 “ easy sensation in all her limbs, and seems to
 “ be in danger of fainting. She is not drop-
 “ sical;

“ fical ; ſhe even enjoys a pretty good ſtate of
 “ health ; ſhe voids naturally all the water ſhe
 “ drinks, but her urine is extraordinarily fœ-
 “ tid. She lives at the Hotel des Arts, Faux-
 “ bourg Saint Martin.

“ Signed BESSEJON DE LA CHASSAGNE,
 “ Prêtre de St. Laurent.”

The facts related by M. de la Chaffagne ſeemed, if they might be relied on, to afford an inſtance of an affection, at any rate extremely rare, if not altogether without example ; but their value, like that of every other fact, depended on their authenticity. There was a poſſibility that the writer of the account, without any intention of ſtating more than was true, might have been deceived by the patient or her friends, and that the ſtory in queſtion might, on farther inquiry, like too many other extraordinary aſſertions, be found to be greatly exaggerated, or even to have its origin in ignorance or impoſture. A narrative ſo remarkable ſeemed, however, to be deſerving of investigation, and accordingly the Editor of this work ventured to direct the attention of ſome of his medical friends at Paris to the caſe, and to ſolicit

licit their assistance in ascertaining the degree of confidence it might merit.

The first communication he was favoured with on this subject was from M. Tenon, Professor of Anatomy, and Member of the Royal Academies of Sciences and Surgery at Paris; who, in a letter, dated Paris, September 7th, 1790, says, "This woman*, Fery, at the "Hotel des Arts, Fauxbourg St. Martin, is "now thirty-nine years old, and pregnant of

* "Cette femme, Fery, Hotel des Arts; rue du Fauxbourg
"St. Martin, maintenant en Septembre, 1790, agée de 39
"ans, est enceinte de son dixieme enfant. Selon elle, de-
"puis l'age de quatre a cinq ans jusqu'a celui de seize a dix
"huit, elle buvoit un seau d'eau, c'est a dire, dix pintes pe-
"sant chacune deux livres de seize onces par jour; depuis
"cette epoque elle en a bu constamment deux seaux & quel-
"que fois trois par jour de vingt quatres heures. A chaque
"coup elle boit un peu plus d'une pinte. Sa santé n'en pa-
"roit point alterée; seulement elle ressent un peu de chaleur
"a la levre inferieure, & qui en même temps la durcit. A
"la moindre indisposition la soif diminue.

"Cette femme n'a conservé que deux enfans. Le plus agé
"a seulement huit a dix ans. Ils ne partagent point l'in-
"commodité de leur mere.

"Cette femme enfin est de moyenne stature; maigre; &
"blonde tirant sur le roux. J'ai fait prendre ces renseigne-
"mens par une personne sure; on les tient de la malade elle
"même; mais je ne garantis pas qu'elle n'en ait imposé."

" her

“ her tenth child. According to her own ac-
 “ count, from the age of four or five years, to
 “ that of sixteen or eighteen, she drank one of
 “ our pailfuls of water, that is to say, ten
 “ quarts, (or Paris pints) each weighing two
 “ pounds of sixteen ounces, daily. Since that
 “ period she has constantly drank twenty quarts,
 “ and sometimes thirty, in the space of twen-
 “ ty-four hours. Every time she drinks she
 “ swallows rather more than a quart. Her
 “ health does not appear to be affected, only
 “ she experiences a little heat in her under lip,
 “ which at the same time hardens it. When
 “ she is in the least indisposed her thirst dimi-
 “ nishes.

“ She has reared only two children: the
 “ eldest is not more than eight or ten years
 “ old. Neither of them partake of their mo-
 “ ther’s complaint.

“ This woman is of a middle stature;
 “ lean; and of a fair complexion, inclining
 “ to red.

“ I have employed a person on whom I can
 “ depend to procure for me these particulars,
 “ and he has them from the patient herself;

“ but I cannot be sure that she has not imposed
“ on him *.”

The next account the Editor received of this case was from Mr. William Maiden, of Stroud in Kent, an ingenious student of physic, who

* To the information here given, relative to the woman in question, M. Tenon adds the following instance of Polydipsia from his own experience: — “ This fact,” says he, “ recalls to my mind another that has occurred to me in the course of my practice. An Advocate, who was eagerly engaged in hunting, and much heated, happened to fall into a rivulet. To this accident succeeded a thirst, which induced him to drink from eight to ten quarts daily. At the end of three months, during which this complaint lasted, he came to Paris, and was cured chiefly by the use of a chalybeate water.

“ There is another instance of excessive thirst occasioned by antimony. This last fact is by Wepfer.—See the *Collection Academique*, Tome VII. page 584.” — “ Ce fait m’en rappelle un autre qui s’est présenté à moi dans le cours de ma pratique. Un Avocat, entraîné par la chasse, & étant en sueur, tomba dans un ruisseau. A cet événement succéda une soif qui le portoit à boire environ huit à dix pintes par jour. Au bout de trois mois que duroit cet état il vint à Paris, & fut guéri par l’usage de l’eau ferrugineuse.

“ On a un autre exemple de soif extraordinaire causée par l’antimoine. Cette dernière observation est de Wepfer; *Collection Academique*, Tom. VII. page 584.”

went

went lately from London to Paris, and who, at his request, visited this woman in August, 1791. Mr. Maiden found her rather thin in the face, but seemingly in good general health, without any swelling of the legs or preternatural enlargement of the belly; and she related to him nearly the same circumstances of her case that the reader has seen mentioned in the preceding accounts. But Mr. Maiden, who delayed this inquiry till the day before he intended to leave Paris, having been able to remain with her only a few minutes, the truth of the facts still rested chiefly on the assertion of the woman herself, and nothing less than the ocular testimony of some intelligent person, whose accuracy might be fully relied on, seemed sufficient to establish their authenticity. Such a testimony has, at length, been obtained through the obliging exertions of M. Souville, Physician at Calais, and M. Parmentier, Apothecary Major of the Royal Hospital of Invalids at Paris, at whose request M. Brougniart, who is known to the Editor of this work as a very accurate and ingenious student of physic, readily undertook the investigation of the case. The following papers relative to this subject, with which we shall close our account of the case, will show

the satisfactory manner in which the facts in question have been ascertained :

1. *Extract of a Letter from M. Parmentier, Apothecary Major of the Royal Hospital of Invalids, &c., to M. Souville, Physician at Calais, and Member of the Royal Medical Society at Paris, &c., dated Paris, October 27th, 1791.*

“ I have delayed, Sir, doing myself the honour of answering your letter till I should be furnished with the particulars of the case Dr. Simmons has requested of us ; and I thought I could not do better than to request M. Brougniart to procure them for him. You will judge from the inclosed papers how well he has acquitted himself of a commission which I myself should have readily undertaken, had I not had reason to hope that it would be still more completely executed by physicians who, though young, are good observers *.”

2. *Ex-*

* “ J’ai attendû, Monsieur, pour avoir l’honneur de vous repondre que je fusse muni de l’observation que le Docteur Simmons nous a demandé. Je n’ai crû pouvoir mieux faire que de charger M. Brougniart de lui la procurer. Vous jugerez

2. *Extract of a Letter from M. Brougniart, Student of Physic at the Royal Hospital of Invalids at Paris, to Dr. Simmons, dated Paris, October 25, 1791.*

“ You* wrote lately, Sir, to M. Souville,
 “ for the purpose of procuring some authentic
 “ information relative to a woman at Paris
 “ who drinks a great quantity of water. You
 “ expressed to him a wish that some person,
 “ whose accuracy could be relied on, might be
 “ engaged to visit this woman, and see with
 “ his own eyes the truth of this fact. M. Sou-
 “ ville

“ jugerez par les pieces c’y jointes s’il s’est bien acquitté de la
 “ commission que j’aurois volontiers fait moi même, sans l’es-
 “ perance ou j’étois quelle serait encore plus complètement
 “ remplie par des medecins qui, quoique jeunes, voient bien.”

* “ Vous ecrivites, Monsieur, dernièrement a M. Sou-
 “ ville pour avoir des renseignements exacts sur une femme
 “ de Paris qui buvoit une tres grande quantité d’eau. Vous
 “ lui disiez que vous desiriez que quelque personne sure vould
 “ suivre cette femme pendant assez de temps pour voir par ses
 “ propres yeux la verité de ce fait. M. Souville ecrivit a M.
 “ Parmentier & lui envoya votre lettre. M. Parmentier,
 “ avec lequel j’ai le bonheur d’être extrêmement lié, sachant
 “ combien je desirois trouver l’occasion de vous marquer ma
 “ reconnoissance des bontés que vous avez eû pour moi pen-
 “ dant

“ ville wrote to M. Parmentier, and sent him
 “ your letter. M. Parmentier, with whom I
 “ have the good fortune to be intimately con-
 “ nected, knowing how much I wished for an
 “ opportunity of making you some return for
 “ your kindness to me during my stay in Eng-
 “ land, did me the favour to put into my hands
 “ your letter, and at the same time engaged
 “ me to make the inquiries you desired.

“ Being persuaded that whenever the object
 “ is to ascertain a fact two persons observe
 “ better than one, and must necessarily inspire
 “ more confidence, I communicated your letter
 “ to a society who meet for scientific purposes,
 “ and of which I am a member. The society
 “ joined with me a young physician for the

“ dant mon séjour en Angleterre, voulu bien me remettre
 “ votre lettre & me charger de prendre les renseignements
 “ que vous demandiez.

“ Persuadé que lorsqu’il s’agit de constater un fait deux
 “ personnes voyent mieux qu’une & doivent inspirer plus de
 “ confiance, je communiquai votre lettre a une Société qui
 “ s’occupe des Sciences & a la quelle je suis associé ; on
 “ m’adjoignit un jeune medecin, & nous observames ensem-
 “ ble, chez moi, la femme en question. Plusieurs autres
 “ membres de la même Société furent presens aux observations
 “ ainsi que vous pouvez le voir par le rapport ei joint que
 “ j’ai l’honneur de vous envoyer.”

“ purpose of assisting me in the inquiry, and
 “ we saw together, in my apartments, the wo-
 “ man in question. Several other members
 “ of the same society were present during the
 “ investigation, as you will see by the annexed
 “ Report, which I have the honour to send to
 “ you.”

3. *Report * made to the Philomatical Society, re-
 lative to a Woman who drinks a great Quantity
 of Water; by M. M. Bellot and Brougniart.
 Read at a Meeting of the Society on Saturday
 the 22d of October, 1791.*

“ The Philomatical Society, being desirous
 “ of complying with the request made by M.
 “ Parmentier,

* *Rapport fait à la Société Philomatique, sur une Femme qui
 boit une grande Quantité d'Eau; par M. M. Bellot &
 Brougniart. Seance du Samedi, 22 Octobre, 1791.*

“ La Société Philomatique, désirant répondre à la demande
 “ qui lui a été faite par M. Parmentier au nom du Docteur
 “ Simmons, nous a nommé pour examiner le tempérament
 “ & les habitudes d'une femme qui boit beaucoup d'eau.

“ Nous nous sommes transportés en consequenc, Samedi,
 “ 15 Octobre, 1791, au Fauxbourg St. Martin, Hotel des
 “ Arts, chez la femme en question. Ne l'ayant point ren-
 “ contré chez elle, nous allames à la place où trayailloit son
 “ mari,

“ Parmentier, in the name of Dr. Simmons,
 “ appointed us to examine the temperament
 “ and habits of a woman who drinks a great
 “ quantity of water.

“ We

“ mari, après avoir pris auparavant quelques informations
 “ auprès du Portier de la Maison, qui furent conformes à ce
 “ que l'on nous avoit déjà dit. Nous trouvâmes cette femme
 “ avec une cruche d'eau à côté d'elle. Nous primes jour, &
 “ il fut convenu, qu'elle viendrait passer une journée entière
 “ chez l'un de nous.

“ Nous nous réunîmes, en effet, Lundi, 17 Octobre, 1791,
 “ & reçûmes de cette femme les renseignements suivans.

“ Catherine Bonsergent, épouse de Jacques Fery, fave-tier,
 “ demeurant à Paris, Hôtel des Arts, Fauxbourg St. Martin,
 “ paroisse St. Laurent, est âgée de 40 ans. Elle est née à
 “ Senlis.

“ Elle est très blonde ; sa peau est fine & marquée de
 “ taches de rousseur. Elle est plus maigre que grasse, & pa-
 “ roît être d'un tempérament bilieux. Ses bras sont plus
 “ maigres que le reste de son corps.

“ Elle fut mise en sevrage chez sa grande mère, qui, bu-
 “ vant beaucoup de vin, lui en fit boire aussi. De retour
 “ chez sa mère, elle vomissoit tout ce qu'elle prenoit. Les
 “ matières qu'elle vomissoit étoient noires.

“ Dès sa plus tendre jeunesse, elle eut une soif très confide-
 “ rable, & cherchoit tous les moyens de la satisfaire. Etant
 “ fille, elle buvoit trois seaux d'eau par jour ; étant mariée,
 “ deux seaux lui suffirent, jusqu'à son premier enfant. Alors
 “ elle reprit sa première dose de trois seaux, jusqu'à son qua-

“ trième

“ We accordingly went, on Saturday the
 “ 15th of October, to the woman in question,
 “ at the Hotel des Arts, Fauxbourg St. Mar-
 “ tin. Not having met with her at home, we
 “ went from thence to the place where her hus-
 “ band was at work, having previously collect-
 “ ed, from the Porter of the Hotel, several
 “ points

“ trième enfant ; depuis cette époque, elle n'en boit plus
 “ que deux dans les 24 heures. Lorsqu'elle est malade, elle
 “ n'a plus la même soif ; & lorsqu'elle ne boit point autant
 “ qu'elle le desire, elle se porte mal.

“ Lorsqu'elle est en couche elle à beaucoup plus soif qu'à
 “ l'ordinaire.

“ Elle n'a pas plus soif en été qu'en hyver.

“ Les choses salées, qu'elle n'aime pas à manger, ne l'al-
 “ tèrent pas plus que les autres alimens.

“ Sa soif se fait sentir par une défaillance d'estomac, sem-
 “ blable à celle que l'on éprouve lorsqu'on a faim. Elle a la
 “ bouche pâteuse, & ne pourroit, dit-elle, avaler un morceau
 “ de pain.

“ Lorsqu'elle a bû elle sent vers la region de l'estomac un
 “ froid assez considérable, qui la fait frissonner pendant quel-
 “ que temps ; ce qui l'oblige d'être continuellement auprès
 “ du feu, pour peu qu'il fasse froid.

“ Cette femme a la lèvre inférieure assez grosse & couverte
 “ de croutes. Cette lèvre lui cuit & lui elance beaucoup,
 “ surtout en été. Elle est sujette à avoir des hemorrhoides qui
 “ ne fluent pas ; alors elle n'a plus mal à la lèvre.

“ Elle

“ points of information which agreed with
 “ what had already been told to us. We found
 “ the woman with a pitcher of water by her
 “ side ; and a day being appointed for the pur-

“ Elle a eu onze enfans en dix couches. C’est depuis son
 “ premier enfant qu’elle a des hemorrhoides.

“ De tous ses enfans il ne lui en est resté que deux ; pres-
 “ que tous ceux qu’elle a nourri ont été sujets à différentes
 “ maladies. Son aîné encore existant à une maladie de la
 “ peau, semblable à la gale, mais qui n’est cependant pas con-
 “ tagieuse. Le plus jeune, qu’elle n’a nourri qu’un mois,
 “ jouit d’une très bonne santé.

“ Cette femme est la seule de sa famille qui ait une aussi
 “ grande soif.

“ Elle sue assez, & urine en proportion de ce qu’elle boit.

“ Elle ne crache point.

“ Elle ne prend ni café, ni vin, ni liqueurs spiritueuses.

“ Elle nous a dit qu’elle mangeoit beaucoup, ce que nous
 “ n’avons cependant pas remarqué.

“ Cette femme a bû devant nous, pendant dix heures quelle
 “ est restée avec nous, quatorze pintes d’eau ; ce qui peut
 “ produire environ vingt-huit livres. Elle nous a dit qu’elle
 “ se relevoit la nuit toutes les heures & demie pour boire ; ce
 “ qui fait assez exactement la voie d’eau que cette femme pré-
 “ tend conformer dans 24 heures.

“ Elle a rendu dix pintes d’urine peu colorée.

“ M. M. Bonnard, Lair, & Robilliard, membres de la
 “ Société Philomatique, ont vu cette femme avec nous pen-
 “ dant une assez grande partie de la journée.”

“ pose,

“ pose, it was settled that she should come and
 “ pass the whole of it with us.

“ We met accordingly on Monday the 17th
 “ of October, 1791, and received from this
 “ woman the following particulars :

“ Catherine Bonsergent, wife of James Fery,
 “ a cobbler, now living in the Hotel des Arts,
 “ Fauxbourg St. Martin, parish of St. Lau-
 “ rence, at Paris, is forty years old, and was
 “ born at Senlis.

“ She is very fair ; her skin is fine, but freck-
 “ kled. She is rather lean than fat, and seems
 “ to be of a bilious temperament. Her arms
 “ are leaner than the rest of her body.

“ At the time she was weaned she was placed
 “ with her grandmother, who, drinking a good
 “ deal of wine, made her also drink it. When
 “ she returned home to her mother she vomited
 “ up every thing she took. What she vomited
 “ was of a black colour.

“ From her earliest infancy she had a very
 “ considerable thirst, and sought every means
 “ of satisfying it. While she was single she
 “ drank three pailfuls of water a day ; after she
 “ was married two pailfuls were sufficient for
 “ her till she was delivered of her first child ;
 “ she then returned to her former quantity of
 “ three

“ three pailfuls, and continued it till after the
 “ birth of her fourth child. Since that period
 “ she has drank only two pailfuls in the four
 “ and twenty hours. When she is sick she has
 “ no longer the same thirst, and when she does
 “ not drink as much as she desires she is ill.

“ When she lays in she has much more thirst
 “ than usual.

“ She has not more thirst in summer than in
 “ winter.

“ Salted meats she is not fond of eating, but
 “ they do not render her more thirsty than
 “ other aliments.

“ Her thirst occasions a sensation at the sto-
 “ mach similar to that which is excited by hun-
 “ ger. Her mouth is clammy, and she is un-
 “ able, she says, to swallow a bit of bread.

“ When she has drank she feels about the
 “ region of the stomach a pretty considerable
 “ coldness, which occasions her to shiver for
 “ some time, and obliges her to be constantly
 “ near the fire whenever the weather happens
 “ to be at all cold.

“ This woman has the lower lip rather thick,
 “ and covered with scabs. This lip smarts,
 “ and at times is very painful to her, especially
 “ in summer. She is subject to the blind piles,
 “ and

“ and when these take place the complaint in
“ her lip ceases.

“ She has had eleven children in ten lyings
“ in. It is since the birth of her first child
“ that she has been subject to the piles.

“ Of all her children there remain only two.
“ Almost all of those she has suckled have been
“ subject to different diseases. Her eldest, who
“ is still living, has a disease of the skin similar
“ to the itch, but which is not infectious. Her
“ youngest child, which she has suckled only 2
“ month, is in very good health.

“ This woman is the only one of her family
“ who has so great a thirst.

“ She perspires sufficiently, and her urine is
“ in proportion to what she drinks.

“ She does not spit.

“ She drinks neither wine, nor coffee, nor
“ spirituous liquors.

“ She told us that she ate a great deal, but
“ we did not observe this while she was with
“ us.

“ This woman drank, in our presence, du-
“ ring the space of ten hours which she remain-
“ ed with us, fourteen quarts (or Paris pints)
“ of water, which must be equal to about
“ twenty-eight pounds. She assured us that in

“ the night time she rises every hour and a half
 “ to drink, and this will be found to make
 “ pretty exactly the load, or two pailfuls, of
 “ water, which this woman asserts that she
 “ drinks in four and twenty hours.

“ She voided ten quarts of urine that was
 “ nearly colourless.

“ M. M. Bonnard, Lair, and Robilliard,
 “ members of the Philomatical Society, ob-
 “ served, with us, this woman during a confi-
 “ derable part of the day.”

While the preceding account was preparing for the press the following paragraph appeared in the Lincoln Mercury of Friday, December 9, 1791 :

“ However extraordinary the following cir-
 “ cumstance may appear, it may be depended
 “ on as fact :— A man who lives with Mr.
 “ John Julyan, of Woodstone, near Peterbo-
 “ rough, is afflicted with such an immoderate
 “ degree of thirst, as obliges him to drink
 “ the astonishing quantity of three gallons of
 “ water a night, and one gallon a day ; and
 “ what makes this appear still more extraordi-
 “ nary,

“ nary, he has continued this practice twenty-
 “ three years.”

The facts described in this paragraph bore too striking a resemblance to those he had just before received from Paris not to excite in the Editor a wish to see the case more fully and satisfactorily investigated. This has since been done through the kind offices of Sir Joseph Banks, Bart., who being acquainted with a gentleman in the neighbourhood of the patient, on whose accuracy he knew he could depend, had the goodness to transmit to him some queries from the Editor relative to this subject, with a request that he would engage in the inquiry.

In consequence of this request Mr. Maxwell, the gentleman alluded to, sent for the man to his house, where he remained a whole night, and was carefully attended to. The result of this investigation, which sufficiently establishes the truth of the facts, we shall here give in Mr. Maxwell's own words.

Extract

*Extract of a Letter from Mr. George Maxwell
to Dr. Simmons, dated Fletton Lodge, near
Peterborough, December 18, 1791.*

“ With respect to the Water Drinker, who
“ is the subject of your inquiry, and who lives
“ at Stanground, near Woodstone, though he
“ works at the latter place, it happens that Mr.
“ Beal, the person who now looks after my
“ farm, employed him as a thrasher more than
“ twenty years ago. His account of this man
“ is, that he always drank the quantity he is
“ now said to do, or at least was at that time
“ reputed to drink it.

“ As he resided three or four miles from
“ Mr. Beal’s habitation, the latter used to make
“ up a bed for him in his house, and Mr.
“ Beal observed that at night he always took
“ a bucketful of water up stairs with him.

“ I have a labourer likewise who has worked
“ with him, and who says that in mowing time
“ this man always takes four quarts of water
“ out with him from a pump in the village,
“ besides two quarts of beer.

“ These

“ These accounts being sufficiently satisfac-
 “ tory as to his not being an impostor, I have
 “ sent for him, and put to him your queries,
 “ which I shall here set down, together with
 “ his answers to each :

Q. 1st. “ His name, age, occupation, habit
 “ of body, and general state of health ?

A. “ William Read ; in the fifty-first year of
 “ his age ; a labourer ; never costive ; gene-
 “ rally in good health.

Q. 2d. “ Whether his thirst is natural, or a
 “ consequence of disease, and if so, at what
 “ period of life it first shewed itself ?

A. “ Not natural, but came on after an ague
 “ and fever, which confined him a whole win-
 “ ter, twenty-four years ago.

Q. 3d. “ Whether his thirst is constant and
 “ uniform, the same in summer as in winter,
 “ or only occasional, and varying in degree ?

A. “ Always the same, when he is well.

Q. 4th. “ Whether he drinks any other li-
 “ quor besides water ?

A. “ Has no objection to other liquors, but
 “ can seldom get any.

Q. 5th. “ How much does he usually take at
 “ a draught, and how often does he repeat it ?

A. “ A quart at a time, and repeats it sixteen

“ or eighteen times in the course of a day and
“ night.

Q. 6th. “ Whether his thirst is diminished or
“ increased when his general health happens to
“ be affected ?

A. “ When his health happens to be affected
“ he drinks but little ; nothing like so much as
“ the usual quantity.

Q. 7th. “ What is the state of his tongue and
“ fauces with respect to dryness, moisture, &c. ?

A. “ No appearance of dryness.

Q. 8th. “ What quantity of urine does he
“ void, and what is the state of it ?

A. “ He makes water almost every time he
“ drinks, and as much upon the whole as he
“ drinks. He knows nothing of the state of
“ it.

Q. 9th. “ Does he perspire much or little ?

A. “ Very much when he works, but not at
“ all in the night.

Q. 10th. “ What is the general state of his
“ bowels ?

A. “ No purging, nor any pain in his bowels.

Q. 11th. “ Is he the only one of his family
“ who has been remarkable for this excessive
“ thirst ?

A. “ Yes.

“ The

“ The man adds, that he has consulted several medical gentlemen about his complaint; but has not been able to get any thing that could, in the least, relieve him.

“ On Sunday the 18th instant, at two o'clock, he ate a hearty dinner of roast beef with my servants, and drank a quart or more of beer. Contrary to his promise, he went home as soon as dinner was over, but returned about five, when I ordered him into the room where I was sitting, and he drank a quart of water at a draught and very greedily. He said he had drank three times whilst absent.

“ At eight o'clock he supped, and drank a quart of small beer.

“ At nine o'clock he went to bed.

“ Mr. Beal promised to watch him all night.

“ At half past nine I went over to Mr. Beal's to settle the plan of management, his house being at a little distance from mine. It was agreed that no water should be left in Read's bed room, but that it should be set ready in a room below to be carried to him at a quart at a time in the night.

“ The next morning (Monday), at eight o'clock, I found him at breakfast. Mr. Beal

“ informed me that he had carried him the
“ water himself, and that

“ At ten o'clock (the night before) he had
“ drank a quart ;

“ At eleven o'clock, another quart ;

“ At twelve o'clock, another quart ;

“ At near three (Monday morning), another
“ quart ; (all of which he drank greedily ;
“ each at a single draught) ;

“ Between four and five o'clock, another
“ quart, except a little left in the mug.

“ At near six another quart was carried to
“ him, but of this he left about half.

“ A servant boy who slept with him says he
“ drank the remainder of the last quart after
“ Mr. Beal left him.

“ The patient himself says he drank a seventh
“ quart as soon as he got up, whilst Mr. Beal
“ was employed in the yard.

“ I found him, as I just now mentioned, at
“ breakfast, in the kitchen, eating heartily of
“ milk with bread crumbed in it. He ob-
“ served to me that he prefers milk to cold
“ meat or any thing else ; that he was not more
“ thirsty last night than usual, and thinks he
“ usually drinks as much every night, but that
“ never having had his liquor measured to him
“ before,

“ before, he could not speak with certainty in
“ the account he gave.

“ I examined the water made by him in the
“ night. There appeared to be between five
“ and six quarts of it, and it shewed no appearance of sediment.

“ At nine o’clock the man had finished his
“ breakfast, having ate a quart of milk and
“ bread, and some cold meat after it, and
“ drank two quarts of small beer, except about
“ a gill which we found left in the bottom of
“ the last jug.

“ The facts being thus ascertained without a
“ possibility of doubt, I did not think it necessary to detain him any longer; and for
“ my own part I believe all that he says on the
“ subject.”

IX. *An Account of the good Effects of Electricity in a Case of paralytic Affection; serving to prove that, in such Cases, the electric Sparks should be taken from the Muscles which are Antagonists to those that are contracted. Communicated in a Letter to Dr. Simmons by William Gilby, M. D. Physician to the General Hospital at Birmingham.*

I SEND you the following case as an additional proof, to that which I communicated to you last year *, of the good effects of electricity in muscular contractions.

It has hitherto been the practice of medical men to use electricity to the contracted muscles, which is a practice I wish to see laid aside; its effects being to make the muscular fibres contract more strongly: whereas if the electrical sparks be taken from the muscles which are antagonists to those that are contracted, they prove a very powerful and efficacious remedy.

This is a fact which I am desirous of establishing, and this can only be done by a publication of successful cases.

* See the London Medical Journal; Vol. XI. page 385.

Mr. W——, aged about thirty years, was seized, on the 7th of January last, with a slight paralytic affection. His mouth was drawn to the left side; his speech affected, and it was with difficulty he could take in liquids.

I saw him on the 10th, and ordered a blister to be applied to the spine of the neck; and also some pills composed of camphor and assafoetida, and a mixture consisting principally of *aq. menth. pip.* and *tinct. valer. vol.* Proper doses of these medicines were taken every four or five hours for three days, and the blister discharged plentifully, but without being productive of much amendment. I therefore resolved upon drawing electrical sparks from the muscles inserted into the right angle of the mouth. After this had been done twice a day, for three or four days, the patient had some power in counteracting the action of the muscles which were contracted. He said he could speak and take in liquids with much greater ease.

On the 19th there was a very visible alteration for the better. He could bring the relaxed muscles into action at pleasure, but could not make them contract so far as for the mouth to regain its proper place.

I saw him on the 21st, 23d, and 25th, and was witness to a progressive amendment.

On the 2d of February he had nearly a complete command over the relaxed muscles, so that he could draw the mouth as much to the right side as to the left.

In this, and also in the case of Mrs. G——, inserted in the London Medical Journal, and which I have already referred to, it seems a difficult matter to ascertain whether the disease depended upon an increased power of action in the contracted muscles, or a want of the ordinary power of action in their antagonists.

P. S. Two cases have lately occurred to me ; the one of Samuel Locker, and the other of Emanuel Parsons, in both of which there had been a perfect paralysis of the extensor muscles of the fingers for some time. The latter of these is quite cured, and the other nearly so, by drawing electrical sparks from these muscles night and morning. The skin, in both cases, was generally much inflamed by the operation, and often blistered. Emanuel Parsons had been admitted into two of the hospitals in London, but without receiving any advantage whatever.

These

These men are both of them glass cutters, and have been accustomed to work many hours in the day with their hands in cold water.

Birmingham,
November 30th, 1791.

X. *Observations on some epidemical Effects.* By Mr. William Blizard, F. R. S. and S. A. Corresponding Member of the Royal Society of Sciences of Gottingen, and Surgeon to the London Hospital.

MANKIND are generally interested in inquiries into the nature of epidemical effects upon the human body: it is, therefore, to be lamented that the labourers have been so few in this field of medical science.

If nature were strictly watched, there might possibly in time be ascertained some connexion and order in epidemical causes and effects; but from the obscurity of many of the operations, in maintaining the various balances among the parts of matter, much industry and attention are necessary in this undertaking. The observations of many men, in various parts, will be required, and great philosophical acumen for arranging and comparing the facts and drawing
general

general inferences. The laws of the animal œconomy, and particularly those that direct the constant efflux from exhalent arteries, and the continual influx into the absorbents, so expressive of the connexion of the body with surrounding matter, must be understood. The weight and temperature of the air, its moisture, and what else it may contain, must be continually subjects of investigation. The winds too, as affecting the properties of the air, and directing the course of matter floating in it, must not be less regarded: but as all the parts of nature are linked together, are dependent upon, and in their changes affect each other, the powers of the mineral and vegetable kingdoms upon the air and body must also be considered; nor should the influence of the planetary system be unheeded: for, doubtless, effects as certain, though less manifest than the seasons and their varieties, arise from the courses of orbs, whose distances, or lengths of periods of revolution, make them but little the objects of philosophical attention*.

Accurate

* The meteorological journals published annually by the Royal Society, and other philosophical bodies, will, in these views, probably, at some period, be experienced of invaluable

Accurate inquiries into the nature of endemic diseases, and their gradations of diminution and change from country to country, may also throw great light on the nature and power of the many agents in the production of epidemical affections.

Nor should the inquirer be discouraged from any considerations of difficulty or improbability of ultimate complete success; for mankind could not fail of being benefited by more accurate and connected histories of epidemical effects, though the nature of their causes should never be unveiled.

In this uncultivated field of inquiry, then, any observations accurately made and faithfully recorded, cannot be altogether useless: and trials of application of the laws of the animal œconomy, in accounting for epidemical effects, may also perhaps, at some period, be useful, either in confirming truth or in exposing error.

On these presumptions the following senti-

ment is made. The Marine Society, desirous of being serviceable to the world in every way compatible with their great design, have also resolved on having an accurate meteorological record kept on board their ship moored between Deptford and Greenwich.

ments

ments are ventured. The subject being involved in much obscurity, attempts to throw light upon it, though without success, may surely be pardoned.

“ *Quale per incertam lunam sub luce maligna*

“ *Est iter in sylvis.*”

However far the vascular system be divided, each part may be considered as having a function assigned to its performance different from that of every other portion. Every line, therefore, of an artery has a degree and kind of irritability by which it is regularly obedient to the quantity and nature of the fluid that passes through it. The same may also, perhaps, be observed of the veins and absorbents; for should proper muscular coats to these vessels be not allowed, yet causes affecting the arteries that supply their membranous sides, or that are situated near them, must produce some change in the offices of the tubes themselves.

The many kinds and degrees of abstractions made from the blood, in its course through the arteries, and the various additions received in its progress in the veins, must constantly be productive of alterations in that fluid; so that in no two parts into which any vessel can be divided is the fluid exactly the same: and thus the blood, in

all the series of vessels and structures of parts, is determined precisely as a proper exciter to the degree and kind of irritability of the part to be excited.

The peculiar effects of stimulants arise then from the peculiar dispositions of parts of the vascular system; so that the vessels of one organ may be powerfully excited, while every other part, equally subjected to the influence of the exciting cause, shall remain unaffected. Effects of this nature are generally understood, and thence classifications of the *materia medica*. The effect distinguished by the term *sedative*, is undoubtedly as certain and as relative to the states of different parts, as the effects of other descriptions of stimulants*.

Thus the harmony of the animal machine depends on a precise relation of the irritability of the infinite distinctions of parts; and on the

* Observations seem to prove that *uva ursi*, *e. g.* diminishes or alters the irritable disposition of the vesical vessels. *Cantharides* peculiarly affect these parts, producing contraction and pain. Will it, then, appear extraordinary if a cause, or chain of causes of a general nature should eventually so dispose these parts, as that the slightest incidental matter should excite inflammation and its train of symptoms?

condition,

condition, quantity, and motion of the blood as exactly suitable to that irritability.

An epidemical cause, therefore, that alters the irritability of the vessels; that changes the nature, quantity, or motion of the blood, as relative to them; or that directly and unusually acts upon them, must produce a change in the disposition or function of an organ so affected.

It appears that epidemical causes sometimes act upon parts of the vascular system, so as to render them in an extraordinary degree susceptible of impressions from occasional causes*. And that when an occasional cause happens, the effects are determined, and characterised, by the organization, state, and function of the affected part†.

It has long been observed, that diseases of every kind partake of the nature of the prevailing

* The general irritable disposition of particular parts is oftentimes strongly expressed in gouty inflammation of the extremities, rheumatic inflammation of the large joints, whitlow, boil, inflamed eyes, piles, various complaints of the skin, &c.: for the slightest accidental causes shall in some seasons occasion one or other of these complaints very generally.

† The conditions of ulcer, scirrhus, cancer, &c., and the progress and events of cases of fracture, wound, &c., experience proves depend in some degree on causes of general influence not understood.

epidemic i

epidemic : but when there is no manifestation of a reigning epidemic, obscure causes, not equal to the production of a defined disease, appear frequently to affect constantly occurring disorders, so as greatly to diversify their symptoms, and determine their events*.

When occasional causes, and those of weak power, affect bodies of any kind of hereditary disposition, at the same time, *generally*, which *individually* have seldom at any other period been affected by similar causes, there must have been a previous change produced by agents of general influence ; and thus hereditary dispositions may be increased, and also diminished, or totally changed through the influence of epidemical causes†.

* *e. g.* The general violence of the small pox, from inoculation, is very different at times. The disposition of bodies to produce the disease is also observed to be in various degrees ; there being sometimes such repugnance to the infection, that the infection of the virus shall repeatedly fail in its effects. When the disease is brought on, under such circumstances, it is remarked to be proportionally mild in its symptoms.

† This is illustrated in scrophulous habits ; of which many are remarked to present themselves at the hospital, within short spaces of time, principally on account of the same pressing symptoms. The more lasting changes in such habits are of common observance.

The

The following facts suggested the foregoing reflections :

In the autumn of 1787 a man was admitted into the London Hospital on account of a hurt of the head. After a few days a considerable degree of erysipelatous inflammation appeared over the whole scalp. The evacuations were larger than would have been judged proper had the nature of the symptom been clearly understood. The man died. Erysipelas soon generally appeared both in the hospital and out of it; and almost every case of injury of the scalp, however slight, was attended with more or less inflammation of the erysipelatous kind*.

In the beginning of the year 1789, in several recent cases of syphilis, in which mercury was in use, distressing ulcerations originated in the tonsils, which became worse during the employment of the mineral. On discontinuing the mercurial preparations, employing the warm

* Contemporary instances of gouty inflammation, frequently observable in consequence of slight casual irritation; seem also strikingly to evince the power of epidemical causes in predisposing parts to be variously affected.

bath, and washing with soft gargarisms, they all got well *.

The disease called the Mumps (*Cynanche parotidea*) is understood to be frequently succeeded by symptoms of inflammation in the breasts of women and *testes* of men. A few years since this complaint appeared in several patients at the hospital. Not one of these cases was succeeded by the different symptoms in the sexes; but at the very same time there was a remarkable number of instances of inflamed breasts and testes without any known cause whatever †.

Hernia humoralis, and spasmodic affections about the neck of the bladder and urethra are sometimes of general occurrence. In January, 1791, they were common symptoms of gonorrhœa. About the same time also cases of suppression of urine frequently happened without the least suspicion of gonorrhœal taint.

* These ulcerations were widely different from those about the mouth which are of common occurrence in mercurial courses.

† Instances of this kind, and of the retrocession of gouty and erythematous inflammation, may possibly one day prove some kind of similarity of structure or function, in distant parts, affected together, or in succession, by the same causes.

n two cases of simple fracture of the thigh, at the same time in the hospital, without comminution or much contusion, delirium took place within a few days of the accidents. The like symptom occurred at another hospital, at the same period, in several cases of simple fracture. In these instances the delirium subsided, and the patients did well, without any other remarkable event.

A disposition to inflammation and abscess reigned during the whole of the last autumn, and still prevails.

During the months of October and November abscesses in the neighbourhood of the bladder and rectum were very common. At present the disposition, in respect of particular parts, appears to be changed. The extremities seem to be more strongly disposed to inflammatory attacks than the perinæum and contiguous parts. Many have been the instances that have lately occurred of inflammation, and its consequences, in the arms, legs, fingers, and toes. In some of them the immediate occasion has been so very trifling, that it is no wonder it was supposed as inadequate to the effect, and that virulence was resorted to in accounting for the consequences. This has been
the

the case, particularly, in those little accidents students are liable to in their anatomical researches. The appearance that is commonly considered as conclusive in these and similar cases, there is reason to believe ought to be viewed in a very different light. The red streaks that are so alarming to those who are ready to admit absorption of poisonous matter, are generally no more than expressions of extraordinary irritability, the effects of which are propagated in the vascular parts; along the sides of the absorbents: for they more frequently arise from hurts, in which no possible virulence can be introduced, than in cases of inoculation, syphilis, &c.*

The instances of inflammation in the perinæum were attended with circumstances that seem interesting, as leading to useful distinctions.

1. Old urethral obstruction was one of the distinguishing circumstances. The irrita-

* Numerous facts, similar to the following, might be adduced in illustration of this remark:—A gentleman received a slight hurt in one of his toes; the consequences were, much pain, red streaks from the foot along the leg and thigh; and a smart fever. Means for allaying irritation removed the symptoms.

tion, so common in this case, produced the most dreadful consequences during the period mentioned. The inflammation was sure to proceed to abscess, and sloughing of the cellular substance and membranous part of the urethra; so that in case a discharge of the matter did not happen, either by nature or art, before the bursting of the urethra, the urine insinuated itself into the surrounding parts, and produced extensive gangrenous destruction.

2. When no obstruction in the urethra had pre-existed, on the membranous part becoming compressed either by the swelling in the perinæum or the presence of matter, a difficulty in voiding the urine or total suppression was the consequence. On the abatement of the inflammation, or the discharge of the matter, the excretion became as free as before.

3. In some cases, from the want of an external opening, the evolved air, and volatile pungent particles from the putrefied cellular membrane, penetrated very extensively from the perinæum upwards to the pubis and abdomen, exciting inflammation, a gangrenous tendency, and emphysema with crepitation to the touch.

In

In one of the cases that occurred I was mistaken in opinion as to the cause of the swelling, &c., about the hypogastric region, in thinking that the urine had escaped into the cellular membrane. Upon making an ample opening in the perinæum the urine was voided without any trouble, not a drop escaping by the wound, and the nature of the symptoms was clearly ascertained*.

Many advantages may be derived from a due consideration of epidemical disposition.

The nature of symptoms that may supervene in wounds, and other accidents, will be better understood.

The reasons why certain operations at one time prove generally successful, and at another time otherwise, will appear.

The periods when particular parts of the body

* On considering these complaints every one must be struck with the care and delicacy necessary in the introduction of the catheter. In a case of the second description, the moment after an ineffectual bold push of the instrument, by a young and inexperienced surgeon, the urine got into the cellular membrane, and produced mortification so rapidly and to such an extent as to terminate fatally, notwithstanding a large opening in the perinæum, and the aid of bark, wine, and opium.

may more or less safely bear operations will be pointed out.

The observation so frequently made at hospitals, "That many cases of the same nature happen together," will be explained.

Why ulcers, &c., throughout an hospital, suffer a change of condition from favourable to unfavourable, and *vice versa*, at nearly the same instant of time, will not appear so extraordinary*.

The various effects, at different times, of applications, &c., will be less often ascribed to wrong causes.

The power of epidemical causes may undoubtedly derive much additional force, or be diminished, by many circumstances. The effects of the various degrees and modes of congregation of men in cities and families, and particularly in hospitals, should be attentively considered, as being highly interesting, and much requiring elucidation †.

* On a sudden shifting of the wind, for instance, to the east from the opposite point, I have seen almost every sore in the hospital presently assume a bad aspect.

† Accurate analyses of the air of hospitals, ships, camps, marshy parts of land, &c., made at various times, could not fail of proving curious and useful.

Vete.

Veterinary science would certainly be advanced by accurate journals of events illustrating epidemical influence on animals.

The subject of epidemics appears to be worthy the attention of particular societies in different countries. Other branches of philosophical research have been greatly improved by bodies of men particularly engaged in their cultivation : and the same success may reasonably be expected from like exertions in respect of epidemical causes and effects.

December 22d, 1791.

XI. *Account of a Method of curing Burns and Scalds. By Mr. David Cleghorn, Brewer in Edinburgh. Communicated in three Letters to John Hunter, Esq. F. R. S. Surgeon Extraordinary to the King, Surgeon General to the Army, &c., and by him to Dr. Simmons.*

LETTER I.

To JOHN HUNTER, Esq.

Edinburgh, 5th August, 1792.

SIR,

WHEN I had the pleasure of seeing you in London in June last, I promised, upon my arrival here, to communicate to you my method of curing burns and scalds. I have been prevented by business from performing my promise so soon as I could have wished, but I will now attempt it, and I hope I shall make myself intelligible to you.

I have already mentioned to you that my first application and most powerful remedy is vinegar. If the injury is on the fingers, hands, or lower parts of the arms, the application may very properly be made by an immersion of the parts. Formerly I used also to immerse the feet and
lower

ower parts of the legs, when injured, in a pail containing vinegar; but although no material bad consequence ensued from this practice, I found that, by placing the legs in a perpendicular posture, the sores were more apt to swell and inflame than when they were laid up and supported in an horizontal one. When, therefore, the feet or legs are injured, or when the injury falls on the thighs, the body, the face, or head, where immersion would be inconvenient or impracticable, the method I follow (and which I find very effectual) is to pour some vinegar into a plate or flat-edged dish, and to dip linen rags in the vinegar and lay them or let them drip on the sores. This operation of alternately dipping the rags and laying them on the parts affected, is repeated so quickly, that the parts are kept constantly wet, or rather overflowing with the vinegar, and the plates are so placed as to receive or catch as much of it as possible; and I continue to use what falls back again into the plates for some time, till it has become somewhat vapid, when I throw it out, and pour into the plates a new supply of fresh vinegar. I have known two English quarts of vinegar used in this way to a large scald on the legs in four or five hours; and if the sores have a large surface,

and

and are on the body, under which the plates cannot be so placed as to prevent it from spilling, a larger quantity still of vinegar will be needed. So cooling and grateful are the effects of this application while any considerable degree of pain or heat remains, and so immediately does the uneasiness return when it is too early discontinued, that the patients themselves seldom fail of giving their active assistance in this operation of wetting the parts affected.

In slight or superficial injuries, by which I mean such as are attended with no excoriation, but with pain, heat, or inflammation, and perhaps with small blisters, the vinegar, if early and constantly applied, is sufficient to effect a cure without any other application. It almost instantly gives relief, and in two or three hours, and often in a much shorter time, the patient will be quite at ease. The application of the vinegar may then be intermitted; but as some degree of pain and heat will possibly return, and if not attended to might yet produce a sore, the vinegar must be applied as often as any painful sensation returns; and to make sure, it ought to be continued now and then for a day after. In short, it is always prudent, even in these slight cases,

cases, to use the vinegar long and in abundant quantities.

In most instances, such slight injuries, as those I now speak of, are healed without ever breaking out into a sore; if, however, through neglect of using the vinegar speedily, or not continuing it long enough, and in sufficient quantities, from something peculiar in the patient's constitution, or any other cause, the injury should degenerate into a sore, it will readily be healed by the application of chalk and poultices in the manner hereafter to be mentioned.

In severe burns and scalds which have recently happened, and which are attended with large blisters, excoriations, or loss of substance, the vinegar must be constantly applied till the heat and pain nearly cease, which will happen in from two to eight hours, according as the injury is more or less severe. The sores must then be covered with rags or cloths well wetted, which, as often as they dry, or any sensation of pain or heat returns, must be wetted afresh with the vinegar for two, three, or four hours.

In the worst cases I have ever met with the pain became tolerable soon after the vinegar was applied, and in ten, or at most twelve hours, the patients

patients were so much at ease, that in general they fell into a sound sleep.

When I first began this practice I used to keep the wetted rags on the sores, without any other application, sometimes for two or three days; but experience shewed me, that after the pain and heat peculiar to burns and scalds were removed, the vinegar excited smarting in the tender excoriated skin, and was in fact of no farther use: I therefore never employ it longer than twelve hours, excepting on the parts round the edges, or outside of the sores, which I foment with it for a minute or two before the dressings, to be afterwards mentioned, as long as they continue in any degree swelled or inflamed.

The wetted rags being removed, the sores must next be healed with other applications; and the first dressing I use is a common poultice made of bread and milk, with a little sweet oil or fresh butter in it. I lay the poultice close to the sore, and use no gauze or cambric between them. The first dressing should remain six, or, at most, eight hours, and when it is removed the sores must be covered entirely with chalk finely pounded or scraped (for, instead of pounding the chalk, I generally hold a lump of it over the sores, and scrape it with a knife upon them) till

the powder has absorbed the matter or ichor from the sores, and appears quite dry all over them. A fresh poultice is then laid over the whole, and the same sort of dressing with chalk and poultice is repeated morning and evening till the sores are healed.

In some cases, after the second or third day, if the sores are on a part of the body where it is difficult to keep the poultice from shifting, I use, instead of it, a plaster, pretty thickly spread, of the common white lead ointment through the day, (covering the sores previously with chalk) and chalk and poultices through the night as already directed. I also use the same kind of white ointment, occasionally, through the day, when I think the constant renewal of poultices has softened and relaxed the sores too much; a circumstance which, notwithstanding the absorbent quality of the chalk, will, at times, in some degree happen.

In cases where there are large blisters, before I apply the vinegar, I open them with a pin or a lancet in different parts, and gently press the water out of them with a linen cloth. The intention of this is to bring the vinegar to act more closely upon the burnt flesh, and I have found it to have an excellent effect.

Whilst

Whilst any of the skin of the blisters remains on the sore, matter will form and lurk under it, which cannot be reached and absorbed by the chalk. New punctures, therefore, must be made at every dressing, whenever matter (which must be gently pressed out with a cloth) is seen lurking, and as soon as the skin has lost its toughness so much that it can be separated from the sore without irritating it, which in general is the case on the second or third day, it ought to be gently and gradually picked off when the sores are dressed, and plenty of chalk instantly laid on to prevent any bad effects the air might have on sores in a state so highly susceptible of injury.

In severe cases, or such as are attended with excoriation or loss of substance, when the vinegar is not applied within twenty-four hours of the time the accidents happen, it almost always gives considerable pain; but if the patient can endure it, the sores may safely be wetted all over for a quarter or half an hour, or even much longer. The smarting is no doubt a little irksome, but it is worst at first, and, at any rate, goes off immediately upon discontinuing the vinegar, and leaves the sores in a much cooler or less inflamed state. If the patient, however, cannot or will not bear the vinegar on the raw and tender parts
of

of the fore, I then cover those parts close with a plaster of the white ointment, and wet all round them with the vinegar for a quarter or half an hour, or longer. The ointment is then taken off, and the fores are covered with the powdered chalk, and a poultice laid over all; and they are afterwards to be treated, in all respects, till they heal, as the severer sort of fores, to which the vinegar has been early applied, are already directed to be, after the pain and heat have left them.

The vinegar I prefer is that made of the best white wine; but any sort that has enough of acid will answer, provided there be no admixture of any mineral acid. In severe cases I generally warm the vinegar, before I use it, to nearly blood heat, especially in cold weather, and where a great deal of it must be employed. When it is applied cold, and in great quantities, it is apt to bring on a chiliness and shivering, which I have always removed readily, by wetting the feet with cloths dipped in warm water, and giving the patient a little warm water to drink, with some spirits added to it so as to be rather stronger than good punch. If the arms or hands are badly injured, I keep them, during the cure, always slung; and if the legs, I endeavour to support them so

as to procure as much ease to the patient as possible.

I am, with much respect, &c.

LETTER II.

Edinburgh, 3d October, 1792.

SIR,

AS I did not, in my letter of the 5th of August, give you so full an account of my method of curing burns and scalds as I intended, I shall now trouble you with some additional observations on the same subject.

When I was speaking of the severer sort of injuries, I omitted to mention that they are more easily cured on the face than on any other part. In the worst I have met with I have never had occasion to use the chalk and poultices, and yet complete cures were always effected without leaving mark or scar; and this is so far fortunate, as the application of poultices to some parts of the face would be very inconvenient. Were the face, however, to be so deeply burnt as to occasion a considerable loss of substance, or were the injury, though trifling at first, (through neglect of the use of vinegar) to break out into an ulcer or
bad

bad fore, (a case which I never happened to meet with) chalk and poultices, or chalk and white ointment, would no doubt be necessary.

The cases that have occurred to me of injuries of this sort on the face, were not of the worst kind; but some of them, notwithstanding, were pretty severe; and as it is of particular importance to prevent scars on that part, I shall select three of them, occasioned by different sorts of accidents, and state how I treated them.

The first I shall take is that of a boy, of four year old, who fell with his face upon a room grate pretty much heated, and left on one of the bars of it the skin of both his lips, and of one of his cheeks to the ear. The vinegar was instantly applied (cold), and continued without interruption for about four hours, during which time the boy complained very little of pain. The accident happened at six o'clock in the evening, and by nine he was quite easy; about ten he fell asleep, and did not awake till morning, although during the night the vinegar was twice applied. In the morning he was free of pain, and continued so. The parts, however, were frequently wetted with vinegar for three days longer, and afterwards anointed with white ointment four or five times a day. A thin blackish-coloured in-

crustation formed, (without the least appearance of matter) which gradually peeled off, and in nine days after the accident happened, a new skin, perfectly smooth, was seen over all, which could only be known from that on the rest of the face by its being of a deeper red.

The second case I shall mention is that of a young man whose face was burnt by the explosion of gunpowder. The whole skin under his chin and about the ears, of the eyelids, lips, cheeks, &c. was either in blisters or peeled off. Cold vinegar was immediately applied to the eyelids, (which the patient kept shut) as well as to every other part of the face, and it gave immediate relief. The accident happened about eight o'clock at night, and the vinegar was continued till twelve, when the patient was so easy that he fell asleep. He awoke once or twice in the night, and wetted his face a little with the vinegar himself, and in the morning he was quite free of pain, and continued so.

The vinegar was applied for two days longer, and the parts were also for those two days, and some days after, anointed three or four times a day with a liniment made of linseed oil and lime water, and by turns, as often with the white ointment. No part of the sores shewed any ten-

tendency to fester. New skin formed on different parts without any incrustation, and on other parts a thin blackish one (as usual) formed, which, in six days from the accident, scaled off, and new skin appeared over the whole face, and not the smallest mark was to be seen, excepting the redness of the skin peculiar to all newly-healed sores.

The third and last case is that of a boy of five years old, who was leaning on a small cord which hung across the front of the chimney for drying clothes, and the cord giving way, the boy fell forwards, and his whole face plunged, from ear to ear, into a pot of water actually boiling on the fire. The accident happened on a Sunday, at one o'clock of the afternoon, and till I saw him, which was on the Tuesday following, about noon, the parts had been anointed with linseed oil. By this time his face was so much swelled, (particularly his eyelids) and so disfigured with scabs and blisters, that the features of a human creature could scarcely be distinguished. The eyes were entirely closed and, as I concluded the boiling water must have got into them, I never expected he would see again.

His skin was hot, his pulse feverish; he had eaten very little; had got no sleep since the accident; was exceedingly fretful, and in great pain.

He was brought to my house from a place at some distance, and was cold and chilly. I placed him near a good fire, so as to warm him, particularly his feet. At the same time the vinegar was applied (cold) to his face, without intermission, for three quarters of an hour. By this time the patient was considerably relieved, and he was carried home, and laid in bed, where the vinegar was constantly applied for two hours more, when he fell asleep, and did not awake for three hours, although the parts (excepting the eyes) were several times wetted while he slept. The vinegar was afterwards continued, in the usual way, till ten o'clock, and the patient being costive, I ordered him some boiled pot barley and prunes, which he ate heartily. He slept pretty soundly all night, in the course of which his face was twice or thrice wetted. Next morning he was cool, the swelling of his face was greatly subsided, and the pain had abated so much, that he was no longer fretful or peevish. The vinegar was used pretty frequently this day (Wednesday), and the sores were, besides, three or four times
anointed

anointed with the liniment already spoken of, care being taken not to lay it so thick on the eyelids as to make it run into the eye, lest the lime in it should injure his sight. He rested well this night, and on Thursday morning he was quite easy, and I was happy to find that he could see a glimmering of light with both eyes.

The vinegar and liniment were alternately used, now and then, during the whole of Friday, when the swelling of the face was almost quite reduced, and the patient could see perfectly with both eyes.

On Saturday and Sunday the liniment and white ointment were used, by turns, several times, and on Monday the cure was complete, nothing then remaining on the face but a little incrustation, which went entirely off in a few days, and not a mark remained, nor the least weakness or foreness in the eyes.

From the liniment having been used in two of the above cases on the face, instead of the chalk and poultices, and the cures having been so immediate and complete, it might be thought, perhaps, that it would be as effectual as they are, were it used in their stead on bad sores on any part of the body. To ascertain this I made a num-

ber of experiments, and found that it had not the effects of the chalk and poultices. When sores were raw and relaxed, on any part of the body or extremities, anointing them with the liniment just previously to the dressing with the chalk, &c., was of service in bracing the parts, and I therefore use it now on such occasions. But in one instance of a bad scald on the feet, after using the vinegar in the ordinary way till the pain had ceased, I used the liniment by itself; and although the sore had the appearance, in a short time, of closing and healing, there remained matter lurking within, which afterwards broke out, and the sores became worse than ever. I was therefore obliged to use poultices without chalk, for two dressings, to dilate the sore, and then to heal it with chalk and poultice in the usual way.

The liniment does not appear to be absolutely essential even on the face; for besides the first of the three cases just mentioned, where it was not used, and the cure was complete, I have had many other instances of the same kind; and upon one occasion, when two young men were badly burnt all over their faces by the same explosion of gunpowder, I first applied, to the one, vinegar till such time as the heat and pain had quite abated,

abated, and afterwards the liniment by itself; and to the other I used the vinegar for two days, and afterwards the white ointment, and they were both healed at the same time. As the liniment, however, is neither expensive nor troublesome, either in the mode of preparing or applying it, and as I am rather inclined to think that it is of some service on the face as well as on a raw sore, I, of late, always apply it to both in the way I have already mentioned.

It was owing to my being told by professional gentlemen (to whom I was recommending my application) that this liniment was more efficacious in curing burns than any of my remedies could be, that I was induced to make many comparative trials of it with my own method. One case, in which I had by accident an opportunity of proving the inferiority of the liniment, being curious, and as I deviated in it a little from my ordinary mode of practice, it may not be amiss to lay it before you.

A brewer's servant was scalded on his back and both legs with hot wort, (not boiling.) I was assured there were at first only a few small blisters on his legs, and that his back was only red and inflamed. I am confident, therefore, that if the vinegar had been applied immediately,

diately, the cure would have been effected in a short time, and perhaps without any sore. The liniment, however, was applied, and continued for eight or nine days. The patient, as I afterwards learned from himself, found no relief from it; every part of his legs and back, which the wort had reached, broke out into sores, and at the end of nine days after the accident, when I, at the desire of a friend, went for the first time to see him, I found him in great distress. The skin was entirely off his legs (excepting behind where the wort had not reached) from the knees to the toes, and in some parts the sores were badly ulcerated, and discharged a thin ichor. The under part of the back, and from thence nearly to the anus, was excoriated. It was not, however, ulcerated like the legs, for the patient's waistcoat having been on when he met with the accident, had saved his back in some degree.

His pulse was quick, but feeble; he had taken some purgative medicine, which obliged him to rise frequently to go to stool, and he was so languid, that I thought it necessary to give him some cordial before I began my operations. As I understood that he had drank pretty freely when in health, I gave him nearly a glass full of
brandy,

brandy, diluted with warm water, which recruited his spirits greatly : I then covered the whole fores on the legs thick over with scraped chalk till the ichor was entirely absorbed, and laid poultices over all. This was no sooner done than the patient said he felt himself easier.

Here I would not make the vinegar my first application, because the fores on the legs were so excessively irritable, that the patient could not have endured the smarting it would have occasioned ; neither could I attempt covering them with plasters of the white ointment till I had bathed the edges or outer parts of the fores, (as I have said I do on such occasions) for the most gentle touch would make them bleed, and the plasters could not have been laid on and taken off without considerable irritation. I therefore deviated from my ordinary practice, by using the chalk first, as already related ; and the event proved that, unassisted by the vinegar, it has powerful effects, which I have on other occasions also experienced.

The fores on this patient's back, as I have already observed, were not so bad as those on his legs ; they were, however, raw, much inflamed, and painful ; and as, owing to the state and situation of the fores on his legs, he could
not

not lye in any other posture than on his back, his sores there gave me at this time most anxiety. I applied the vinegar to them (warmish), which occasioned at first a pretty severe smarting, but after being continued for some time, the parts became less sensible, and the patient felt very little pain. The vinegar was used for about a quarter of an hour; the parts were then covered with chalk, and a plaster spread thick with white ointment was laid over all. I should have preferred poultices to white ointment, had I not thought they would have been more apt to be squeezed and shifted by the weight of the body.

As the season was cold, (January 13th) I wrapped flannel cloths round the patient's legs and feet, above the dressings, and left him about one o'clock greatly relieved. I visited him again at nine at night, and found him pretty easy. He had got some sleep; the sores on his legs had a more kindly appearance; and as they were not so very tender and irritable as before, I ventured to wet all round them with vinegar, and then covered them again with chalk and renewed the poultices.

The sores on the back, which were remarkably better, I bathed well with vinegar for five or six minutes, and then dressed them with
chalk

chalk and ointment as before. I continued the same treatment to the back, morning and evening, and on the 16th, at night, the patient could lye on it without pain. A thin incrustation formed on the parts and they were completely whole on the 23d.

I had directed that the legs should be dressed every morning and evening with the poultices and abundance of chalk, whether I was present or not; but the patient's wife entertaining a prejudice against the chalk, (in consequence, as she afterwards told me, of a conversation she had had with a student of physic) she omitted using it every time I was absent at the dressings, which happened to be the case the three mornings just preceding the 28th, and on that morning I observed the sores (though greatly contracted) were too moist and relaxed; there was on several parts of them some blackish clotted blood, probably owing to the legs rubbing on one another in sleep; the parts too were a good deal inflamed, and the patient complained of pain. On this occasion, with a view to invigorate and brace the parts, I wetted the sores twice or thrice with brandy, and then dressed them with chalk and white ointment in the usual way. The patient felt himself easy and comfortable,
and

and from this time the cure went rapidly on, the chalk having no more been omitted. The dressings with it and the white ointment were continued, morning and evening, and besides, on two days, viz. the 28th and 29th, about two o'clock of the afternoon, the sores were covered over with chalk, without renewing the ointment.

On the 30th all was in a manner whole, excepting two parts, rather less in size than a sixpence, upon which some proud flesh had grown, and threatened to leave a scar. These parts were, previously to three or four dressings, powdered over with burnt alum, and dry scabs formed on them, which gradually diminished, but were not entirely off for above two weeks. The cure, however, may be said to have been completed on the 7th of February, when the man went to his work, exactly twenty five days from the time I first saw him. Diachylon plaster was used to the scabs after the man went abroad to work, till they fell off, and no scar, nor mark, except the usual redness, remained.

Dr. James Hay, Fellow of the College of Physicians of Edinburgh, (a gentleman of extensive observation and experience, and of too much candour of mind and liberality of sentiment

timent to think that a valuable discovery in the healing art should be disregarded, and the benefit of it lost to mankind, merely because it happens to be stumbled on by a person belonging to none of the medical professions) has always paid particular attention to the accounts I have given him of my cures, and has condescended, upon several occasions, to visit my patients, and to see with his own eyes the effects of my applications. In particular, he visited the last-mentioned patient again and again, and took the trouble of reconciling his wife to the chalk, which she had been told, as it checked the suppuration, would be attended with fatal consequences. The doctor, was chiefly surprised in this case at the rapid cure of the back, notwithstanding the patient was obliged to lye on it, and he gratified my feelings not a little by saying, that, in the common way of treating such a sore, he doubted much if a mortification of the back could have been prevented, and that it was his opinion I had saved the man's life.

If my remedies really were the means of saving this patient's life, in the seventeen years practice I have had, I must have been necessary in saving the lives of others, for several of my patients were in a much worse state than this.

Besides

Besides many people scalded with boiling water, broth, starch, &c., I have cured a variety of burns occasioned by melted lead and brass, liquid pig iron, red hot bar iron, the flames of spirits, burning coals, linen, &c. quick lime, and by the explosion of gunpowder: and there is no part of the body that one or other of my patients has not been burnt or scalded on.

One child, in going backwards, was thrown down by a pot standing on the floor, newly taken off the fire, and almost full of boiling broth, and fell into, or rather sat down in it, and scalded, in a very bad manner, his anus, scrotum, and parts adjacent, but was healed in a surprisingly short time, the vinegar having been early applied: and a Blacksmith once was relieved and cured, who was in great agony from a spark of hot iron which flew into his eye from a piece he was striking on an anvil. In this case the vinegar was diluted with water to one half of its strength, and the patient let some of it into the eye. He also kept the eye shut, and bathed it with vinegar of a full strength.

In what manner, my applications act, so as to prevent marks and scars, I do not pretend to explain; but I uniformly observe that, when
used

used in time, they entirely check suppuration in all slight cases, and that even in many severe ones pus or matter is hardly ever seen. In deep burns too, attended with loss of substance, the discharge must appear astonishingly little to those who have been accustomed to see fores cured in the ordinary way. It has been commonly remarked, that burns and scalds spread or enlarge for eight or ten days; but with my treatment they visibly contract from the beginning. The new skin begins to form round the extremities of even a bad fore sometimes so early as the second day, and in the middle, where there has been a loss of substance, the new flesh shoots up from the bottom rather with a fungous appearance, the surface of it being unequal, somewhat resembling heads of pins or the candying of honey, (but of a flesh colour) and continues gradually to grow till it rises to the height of the sound flesh around it, when the skin forms at once without incrustation. When I began my practice indeed (I do not speak here of the face, my treatment of it and the effects thereof having been always much the same) I used the vinegar in bad cases much longer than I do now, and did not apply the poultices for twenty-four hours,

or

or oftentimes more; a dry scab, stained by the vinegar of a black ink colour, (easily accounted for) would then form over all the excoriated places, and under it there was always matter: The poultices which were then applied brought off the scab generally in a lump the third or fourth dressing, and a very tender bleeding sore was thus exposed, which I instantly laid very thick over with scraped chalk and poultices. After this, the very same method was observed which I now follow, and the sores healed without a second scab or incrustation, and without mark or scar, as they do now. As I know little of theories, I cannot say whether these circumstances, when duly considered, will confirm, or contradict, or throw any new light on the received opinion concerning the use of suppuration in the production of new flesh; but this I can safely affirm, that I have neither advanced any thing that has not actually happened in the course of my long experience, nor have I exaggerated, to my knowledge, any of the circumstances of the cases I have related, as I trust you will in due time be convinced of from your own experience.

With regard to diet, I allow my patients to eat boiled or roasted fowl, or, in short, any plain
dressed

dressed meat they like ; and I do not object to
 their taking (with moderation, however) wine,
 water and spirits, ale, or porter. My appli-
 cations, as hath been already observed, allay
 pain and inflammation, and also always either
 prevent or remove feverishness ; and as at the
 same time (if one may judge from their ef-
 fects) they have powerful antiseptic virtues,
 I have never had occasion to order bark, or
 any internal medicines whatever, and I have
 only once thought it necessary to let blood.
 When a patient is costive, I order boiled pot
 barley and prunes, or some other laxative nou-
 rishing food, and sometimes an injection, but
 never any purgatives. It is distressing to a pa-
 tient with bad sores to be often going to stool.
 Besides, I have remarked that weakness and
 languor (which never, in my opinion, hasten
 the cure of any sore) are always brought on
 more or less by purgatives. From the effects
 too I have felt them have on myself, and ob-
 served them to have on others, they do not seem
 to me to have so much tendency to remove heat
 and feverishness as is generally imagined ; and
 I suspect that, contrary to the intention of ad-
 ministering them, they oftener carry off useful
 humours than hurtful ones. But I am going
 Vol. II. L out

out of my depth, and exposing myself to criticism, by speaking on a subject that I surely must be very ignorant of ; I will, therefore, return to my vinegar. I have already said that I always prefer wine vinegar, when it is to be had ; I have, however, used, with very good effect, vinegar made of sugar, gooseberries, and even alegar ; but which ever of them is taken, it ought to be fresh and lively tasted.

I once made some trials (on a burn I met with myself) of oil of vitriol diluted with water and of different degrees of strength, but I found its effects to be the very reverse of vinegar, for it increased the pain and heat even when it was pretty much diluted. I make no doubt that distilled vinegar might do ; but since the common sort, when fresh and good, has in every case been so efficacious, there seems to be no occasion to attempt improving upon it ; and as acids are of a pungent penetrating nature, perhaps it would not be safe to apply one too strong to a raw and tender sore. Even the common vinegar, only by being used too cold, affected two of my patients with tremblings and chilliness, which alarmed me a good deal. I removed these symptoms indeed (as I
before

before mentioned), very readily, by warming the patients feet with cloths dipped in warm water, and giving them warm water and spirits to drink ; but ever since I have been careful to use precautions against the like symptoms, particularly in cold weather, by warming the vinegar a little, placing the patients near a fire, giving them something warm internally, and, in short, by keeping them in every respect in a comfortable condition.

In any slight case it is not necessary to heat the vinegar, and seldom in severe ones, if the injury is on the hands or face. Were it not from its chilling effects, it ought to be used cold on every part, because heating weakens it, and hastens its becoming vapid during the application ; when used warm, it must, therefore, be the oftener thrown out and replaced with a fresh supply.

If the vinegar is introduced into hospitals, tubs (resembling bathing tubs, but shallower) that would hold a patient at full length would be useful in cases of universal burns or scalds. A mattress, or something soft, should be made to fit the tub, and the patient ought to be extended on it, and as much warm vinegar poured into the tub as would wet all the under part

of the body and the sides, and the upper part might be wetted with cloths. I never met with such a case; but from the success I have uninterruptedly had, I should not be afraid of undertaking almost any case.

Before I conclude I must observe, that, upon looking over my cases, I see I generally do not open the blisters till the vinegar has been applied for an hour. I said in my last that I opened them before I began to use the vinegar, but I was then in a mistake; it is, however, I believe, not very material.

I have now, Sir, said every thing on this subject that occurs to me to be necessary. I wish I could have been less prolix; all I have aimed at is to be understood, and I wish I may have succeeded even in that: I shall, however, at all times be proud to answer you punctually any questions you may put to me on points on which I have not been intelligible, or on any new ones that may occur to yourself; and I flatter myself that, under your fostering hand, this accidental discovery of mine may one day be considered as no unimportant acquisition to the healing art.—I conversed with you, when in London, about the possibility of extirpating old scars, and I intend, when opportunities offer,

offer, to make some experiments on this subject, the result of which I shall take the liberty of communicating to you.

I have the the honour to be, &c.

LETTER III.

Edinburgh, 4th November, 1791.

SIR,

IT is my earnest wish that the purport of what I have written to you on the subject of burns and scalds should be made public, and nothing, therefore, could give me more pleasure than to see, by your letter of the 19th of October, that you seem to think my communications are not unworthy of a place in the Medical Facts and Observations.

What I mentioned in my last letter concerning the possibility of eradicating old scars, is, at present, merely matter of speculation, and if taken notice of at all in the intended publication, should, I think, only be mentioned by way of hint. The method I propose to myself for filling up and effacing old scars, and removing claret and other marks children are

L 3

born

born with, is to blister the parts, and then lay issue plasters on them till there is a complete excoriation and a suppuration begun, when I would heal the sores with chalk and poultices, as in burns.

I do not expect that in every case this will be effectual, but I should imagine it may be tried with safety, and that probably it may in many cases be of service.

As I wish not to advance a single circumstance that is not strictly fact, I have, since I received your letter, visited a good many of my old patients with a view of examining again whether any marks or scars really remain on the parts that were affected, and I think it proper to inform you that not a vestige of a mark is to be seen on any of their faces, and in general on no other part, though I must confess I found some exceptions. One boy had a pretty large scar on his foot, deeper than the pits of the small pox, but without any seams or ridges on it, neither is it in the least drawn together. This boy was very unruly, and never could be kept from running and jumping about during the cure, which, although the injury was not a severe one, was the most tedious of any I have ever met with. There was probably something unfavourable

yourable in his constitution, as he once before had a fore on the same foot that was very obstinate, and left a deep hole.

The skin on the parts affected of the brewer's servant, whose case I related in my last, seems thinner than that on the other parts of his legs, and has not regained its proper colour, but the surface is smooth and even with the flesh around. A man too who was burnt with liquid pig iron on both his legs and feet, in a most shocking manner, and whose case was the worst I have ever encountered, bears such marks as readily show where the worst of his sores were: there are, however, no pits or hollow places, and but little redness on the skin, which appears somewhat clear and thin, and the lines on the surface do not run in the same direction with those on the skin around, but are drawn as if from the center to the extremities of the parts that were affected. The two last-mentioned patients are hard-working men, in poor circumstances, and could not afford to give their legs ease so long as I could have wished: they took little care too to keep soft linen between their hard coarse worsted stockings and the tender skin when newly formed, and were not in many other respects treated and taken care of, when the sores

were at the worst, as patients would have been in better circumstances ; all which may perhaps account, in some measure, for the appearances I have described.

Before I conclude I shall take the liberty to suggest, that my method of cure should be particularly recommended to the surgeons of the army and navy, where accidents by the explosion of gunpowder have often been fatal. The flame of it passes instantly off the parts, and consequently does not burn them deep ; and I have, on that account, always found less difficulty in curing injuries by gunpowder than almost any others.

I am, with much respect,

SIR,

Your most obedient, humble servant,

DAVID CLEGHORN.

XII. *An Account of the Cure of a preternatural Anus; with Remarks on the History and Treatment of Cases of this Kind.* By M. Default, Surgeon in Chief of the Hotel Dieu at Paris. Vide *Journal de Chirurgie*, Tome I. 8vo. Paris, 1791.

THE subject of this interesting and instructive case was a sailor, named Francis Vialtet, who, in May, 1786, while serving on board the St. Michael, a ship of war, was wounded, in an engagement at sea, by the bursting of a bomb. The wound extended from two inches above the right abdominal ring to the bottom of the scrotum, where the testicle was laid bare; and at the upper part of the wound a portion of divided intestine, of about an inch in length, protruded, but returned into the abdomen again while the surgeon of the ship was cleansing the wound.

A month after the accident the patient was brought to the Marine Hospital at Brest, where he remained till the wound was sufficiently healed to enable him to undertake a long journey on foot to Moulins, the place of his birth. A portion of intestine, however, protruded through

through the wound, from which fæces were incessantly discharged. This protrusion of the intestine was considerably increased by the journey, and his situation becoming every day more and more distressing, he went from one hospital to another, but without experiencing relief, till, at length, on the 29th of September, 1790, he was admitted into the Hotel Dieu at Paris.

At this time the portion of protruded intestine had acquired a considerable bulk. Its shape was nearly that of a cone nine inches in height, the middle part of which projected a good deal forwards. Its basis, which was slightly constricted, came out under a fold of the skin, a little above the abdominal ring: its apex, which inclined backwards and hung down to the middle of the thighs, terminated in a small orifice, through which were discharged the fæces. From the moment of the accident he had ceased to void any thing like fæces in the natural way; but it appeared that once in three or four months he had discharged, by the anus, a small quantity of whitish matter, which seemed to be nothing more than the mucus supplied by the portion of intestine next to the anus.

The

The whole surface of the tumour was red, and exhibited (more especially at its lower part) an appearance resembling the valvular one of the inner surface of the intestines. On the outer side of this mass, another smaller tumour, resembling the other in colour and consistence, was seen issuing from the same abdominal opening. This last was of an oval shape, but its orifice was so constricted as to suffer only a little moisture to escape. Both these tumours had a peristaltic motion, similar to that of the intestines.

The patient, who was tall, and naturally strong and of a good constitution, though extremely thin, was obliged, by the violent pain he experienced, at times, in the abdomen, to be constantly in a curved position, so that in walking he supported himself with a pair of low crutches. An earthen pot, fastened round his waist by means of a cord, and hanging between his thighs, received the extremity of the intestine, and the matter that distilled into it soon acquired an insupportable fœtor.

M. Default had no difficulty in determining, 1. that the principal tumour was formed by that portion of the intestine which corresponded with the stomach, and which being invagi-

nated *, (“if,” says he, “I may be allowed
 “so to express myself,”) like the finger of a
 glove turned inside out, presented to the eye
 its internal surface; 2. that the smaller tumour
 was formed by the lower part of the intestine
 invaginated in the same manner; and 3. that
 the edges of the divided portion adhered to the
 opening in the parietes of the abdomen, and
 were united and confounded with them by one
 common cicatrix.

The long exposure of the parts to the air,
 the irritation occasioned by the constant dis-
 charge of fæces, and by their being rubbed by
 the patient’s cloaths, &c., had so thickened and
 hardened the membranes, that, our author ob-
 serves, it would have been hardly prudent to
 have attempted the reduction of such a mass,
 if experience had not already taught him how
 much, in similar circumstances, may be ex-
 pected from compression. By way of trying
 its efficacy in this particular case, he compressed
 the tumour with both his hands for several mi-
 nutes; and the diminution of bulk he obtained
 by this method convinced him that a great deal
 more might be effected, towards the relief of

* *Invaginée.*

the patient, by a well-regulated and long-continued compression.

For this purpose M. Default employed a simple bandage, with which he covered the whole of the tumour from below upwards, leaving only an opening at the apex sufficient for the passage of the *fæces*. The good effect of this method was soon perceptible; for in the evening of the day the bandage was first applied it became necessary to tighten it on account of the diminished bulk of the tumour; and by the end of the fourth day the intestine had resumed its natural size.

M. Default, now thinking it possible to reduce the intestine, directed an assistant to raise the tumour perpendicularly to the opening in the abdomen, and then introducing one of his fingers into the orifice, while with his other hand he prevented the regurgitation of the intestine, he was enabled gradually to push back the whole of it into its natural situation. The smaller tumour was then reduced in the same manner, and with much less difficulty.

Notwithstanding this successful reduction of the intestine, one great source of affliction to the patient still subsisted, and this was the continual discharge of *fæces* through the wound.

To

To obviate this M. Default introduced into the intestine a thick tent, made of linen, three inches long, and supported it by a suitable bandage. He intended to remove this twice a day, for the purpose of affording a passage to the fæces; but it had not been long applied before the patient complained of a great heat in his bowels, and soon after passed wind by the anus. To these symptoms succeeded pains like those of colic, and a sharp pricking pain in the rectum, attended by an inclination to go to stool, and he voided, in the natural way, about half a pound of very fluid fæces, similar to such as are frequently observed after an indigestion. In the course of the night following he had eight more stools resembling the first, all of which were preceded by acute pain about the rectum. The stools continued to be very frequent during the three following days, but the pain that preceded them became less and less considerable, the fæces acquired by degrees a firmer consistence, and in proportion as this change took place the frequency of the evacuation diminished.

The linen tent was retained in the intestine till the eighth day, when it was removed, and M. Default contented himself with covering the
external

external orifice with a doffil of lint, supported by compresses, over which was applied a broad flat piece of elastic gum. This mode of compression proved sufficient to direct the course of the fæces through their natural channel, and from that time the whole of them continued to be voided by the anus.

The patient now gradually recovered his health and strength, and during the two months he remained in the Hotel Dieu, after this period, his fæces were constantly similar to those of a man in health, and he was perfectly free from complaint. He was repeatedly examined by different surgeons, most of whom had attended to his case from the time of his admission into the hospital, and nothing more was observable in the neighbourhood of the wound in the abdomen than a slight serous exudation which a small part of the lint placed over the orifice had imbibed. Three months after his discharge from the Hotel Dieu, and five from the date of his recovery, he was examined by the surgeon of the hospital at Moulins, to which place he had returned, and was then found to be still in the same good state as when he quitted Paris, although he had lived somewhat intemperately.

Emboldened

Emboldened by the successful event of the case, the patient began now to think himself secure from any danger of a relapse; and accordingly engaged, we are told, in violent exercise, and even in feats of activity, in order to make a display of his vigour in the eyes of his townsmen, who had seen him only eight months before in a deplorable state. These exertions, as might be expected, produced very alarming effects; for having one day undertaken, for a wager, to lift a cask of wine upon his knees, his bandage broke, but this did not prevent him from persevering in his attempt and winning the wager. He walked, it seems, for two hours after this with his handkerchief tied round his waist; but the intestine had begun to make its way out again through the opening which still subsisted in the abdomen, and before he could reach home six inches of it had protruded.

He at first endeavoured to reduce it himself, but without success. Different surgeons of the town who came to his assistance likewise failed. This was on the 4th of March, 1791, and he immediately determined to attempt to get back to Paris. He began his journey in a waggon, but the pain he experienced from this soon obliged him to quit it, and to resume his former mode

mode of travelling, on foot, supported by crutches, and with an earthen pot, as before; between his legs to receive the *æces*.

In this condition he reached the Hotel Dieu at Paris, and came again under the care of M. Default, on the 31st of March. The hardness of the tumour at this time, we are told, was as great, though its bulk was not so considerable, as when he was admitted the first time. After bleeding him, recourse was had, as before, to a gradual compression of the intestine by means of a bandage; but six days elapsed before the intestine was in a state that would allow M. Default to attempt its reduction. It was then effected, however, it seems, without much difficulty; and compresses of lint, linen, and elastic gum, properly supported, were applied as before. The reduction of the intestine was immediately followed by nausea and vomiting, which subsided in about two hours, when the patient had a copious evacuation by stool, of very liquid *æces*, which was preceded, as formerly, by pains in the bowels, particularly about the rectum. During the following night and day he had a diarrhœa, which lessened on the second day, and the *æces* then began to resume their natural consistence.

On the 9th of April, the day the account of the case was written, the fæces were continuing to pass in the natural way; without the least discharge from the wound, and the patient, M. Default assures us, was in every respect as well as before his relapse, so that he proposed to send him out of the hospital again in a few days.

To illustrate his account of the case M. Default has added two figures of the state of the parts before and after the cure, which our readers will find accurately copied in the annexed engraving, the references to which are as follow :

In fig. 1. the letters *a, b, c, d, e*, mark the principal tumour formed by the part of the intestine next to the stomach, turned outwards upon itself like the finger of a glove.

a, e, the basis supporting the broadest part of the tumour, and issuing from under a fold of the skin.

b, rugosities formed by the villous membrane of the intestine.

c, the

Fig: I.



Fig: II.



Jamey del.

Ravenhill sculp.



c, the apex of the tumour, having a small opening posteriorly through which the fæces issued.

e, f, the penis pushed towards the left by the tumour.

g, the smaller tumour formed by the part of the intestine next to the anus.

Fig. 11. represents the state of the parts, in December, 1790, after the cure of the patient.

a, b, a fold of the skin forming a sort of valve before the opening in the abdomen, which remained fistulous.

At the time the preceding case occurred in the Hotel Dieu M. Default had under his care there another man with a preternatural anus that had been formed eleven years before, in consequence of a scrotal hernia, the strangulation of which had terminated in gangrene. In this case a portion of the intestine next the stomach had protruded with its villous membrane outwards, as in the case of the sailor, and formed a tumour of three inches in length; but the other portion of the intestine did not appear. This patient, M. Default observes, was

M 2

lean

lean and feeble, although he devoured a prodigious quantity of food, but it seems he constantly voided it in an imperfectly digested state, and to this circumstance our author thinks it was owing that he preferred food of difficult digestion, particularly sallad.

This man, encouraged by the successful termination of the sailor's case, entreated M. De-fault to undertake the treatment of his, and it was accordingly attempted, though with little expectation of success, as a portion of the intestine contiguous to that which protruded, and which had formerly fallen down into the scrotum, had contracted such an adhesion to the surrounding parts, that it was found impracticable to make any pressure on the opening in the intestine without at the same time subjecting this adhering portion to compression. M. De-fault succeeded, however, in the reduction of the protruded portion of intestine, and its opening was closed with a linen tent, supported by means of a truss. Eighteen hours after this the patient experienced slight colic pains in his bowels, which alarmed him so much, that he removed the tent, and gave up all hopes of cure.

This

This attempt, however, our author observes, slight as it was, seemed to have produced a sensible effect. The patient, who before had been accustomed to void, about once in four months, a whitish mucus by the anus, had been obliged that day to go twice to the close stool, and had voided each time as much of this mucus as he used to do when the intervals between this kind of stools were very long. The same thing, we are told, happened during the eight following days. The intervals afterwards became gradually longer, and at the time (April, 1791) the account was written he had passed a whole month without any such mucous discharge.

From this case, M. Default candidly acknowledges, no conclusion can be drawn; but in a disease so little understood, as the one in question, every well-authenticated fact, he observes, becomes of importance.

At the time he was writing this paper he had, he tells us, two other cases of preternatural anus under his care, of different kinds, but both of them very complicated, and likely to throw considerable light on the disease in question, and on the manner of treating it. One of these patients, he adds, already voided fæces by the rectum, and although there was still a

slight discharge from the opening in the abdomen, every thing seemed to announce an approaching cure.

This disease of the preternatural or (as it is more commonly, though perhaps improperly, called) *artificial* anus affords, in the opinion of our author, a new field of observation to the practitioners of surgery. The writings of the ancients, he remarks, furnish us with very few instances of such an affection. They occur, he acknowledges, more frequently in the writings of the moderns, but in general, he observes, we find even in these only the occasional cause of the disease, and the external appearance of the parts mentioned, without any description of the state of the intestine, a circumstance on which he seems to lay the greatest stress. One of the most frequent occurrences in this complaint, the protrusion of the intestine out of the belly, seems, he observes, even to have escaped the notice of every writer from the time of Hippocrates, who has described it *, to that of Fabricius Hildanus, who, at the beginning of

* Epidem. lib. vii.

the last century, related an example of it as a thing unknown and altogether extraordinary*.

Although we find the writers since the time of Fabricius frequently speaking of tumours formed externally by the intestine, yet it is only within these few years, our author contends, that the state of the parts constituting such tumours has been ascertained. M. Robin, he observes, found the cæcum and part of the colon invaginated in the rectum, in a hernia of the latter intestine that proved fatal. This fact, which we find related by M. Hevin in the fourth volume of the *Memoires de l'Academie de Chirurgie* †, and another similar one described by M. Le Blanc, would, he thinks, have been sufficient to point out to us the state of the intestine in these cases, even if M. Le Cat had not had occasion to dissect the dead body of a woman who had a preternatural anus, and to convince himself of the invagination of the intestine, which in that case had protruded itself externally ‡.

* Centur. 1. obs. 74.

† Edition in 4to.

‡ Philosophical Transactions, No. 460, p. 716.

The effects enumerated by our author as attendant on a complaint of this kind, even in its simplest form, are, the extreme uncleanness occasioned by the incessant discharge of fæces through the preternatural opening; the excoriation of the surrounding parts; the frequent return of griping pains to which the patient in these cases is subject; the difficulty with which the fæces are sometimes evacuated on account of the narrowness of the opening; and lastly, the reduced state of the patient's strength, in consequence of imperfect digestion, and which sometimes terminates in a fatal marasmus, as in the cases related by M. M. Hoin and Le Blanc *, and as our author himself had occasion to see lately in the Hotel Dieu at Paris.

These inconveniences, he observes, have induced surgeons to attempt different modes of relief in such cases. Receptacles made of silver, of tin, and, what is still better, of elastic gum, applied to the opening in the abdomen, and supported by a suitable bandage, have, in different cases, rendered the condition of the patient less offensive to himself and those about

* *Essai sur les Hernies.* 1768.

him, by collecting the fæces, and thus in some measure lessening the fœtor; and in one case M. Mōscati is said to have been able to retain in the opening in the belly a leaden canula through which the fæces were conveyed into a receptacle of tin*.

M. Sabatier, it seems, proposes †, in these cases, to keep, by means of a tent of sufficient bulk, the opening in the intestine large enough to allow an easy passage to the fæces. On the other hand, Professor Richter advises us (with a view to render the digestion more complete) to check the discharge of fæces by means of a piece of sponge applied to the external opening, and supported by an elastic bandage ‡. This method, our author observes, though very ingenious, has been condemned by M. Leffler, who has seen it followed by pains and constipation of the bowels, and by inflammation and excoriation of the skin.

Some few practitioners, M. Default remarks, not satisfied with these palliative methods, have been induced to attempt the radical cure which

* Mem. de l'Acad. de Chir. Tom. V. p. 596.

† Ibid. p. 594.

‡ Traité des Hernies, traduit par Rougemont, chap. xxviii.

nature herself, in these cases, seems to point out. Numerous instances, he observes, prove that the fæces have oftentimes resumed their natural course after having been discharged, even for many months, from the wound in the abdomen that has remained after an operation for a hernia. He particularly refers to a case described by the late M. Petit, in which the two ends of the intestine hanging out of the ring, after the separation of the gangrenous parts, became covered with fleshy granulations, and were gradually confounded with the surface of the wound by a common cicatrix, the fæces in the mean time resuming their course by the anus, without any assistance from art*. M. Default has found an account of another fact of the same kind related by Acrel in his Cases of Surgery †; and he refers for similar instances to the writings of Le Dran, (*Obs. de Chirurg.*); Pott, (*Treatise on Ruptures*); Richard, (*Obs. de Med.*); the *Journal de Médecine*, (Tomes XXXII. & XXXVII.); the Transactions of the Society at Harlem, (Tom. I.);

* Malad. Chir. Tom. II. p. 407.

† Chirurg. Mandelker. p. 174.

and the Essays published by a Chirurgical Society at Copenhagen.

The resources of nature in so great a number of instances could not fail, our author remarks, to excite the efforts of art; and he thinks it probable that the want of success in the first attempts depended principally on the defective method adopted by practitioners, who seem not to have sufficiently considered the nature of the disease. Some, he observes, not properly attending to the *invagination* of the intestine, (we use his own expression) have proposed to bring together its divided portions, while out of the abdomen, according to Ramdhor's method, and to reduce them when sufficiently united *. Others have considered a strict regimen as the most likely means of healing the opening in the abdomen, by diminishing the discharge of feces. We find our author, however, speaking of both these methods as matters of mere speculation which have never been reduced to practice.

M. Default has found, in the letter addressed by M. Bruns to M. Henkel, a case of preternatural anus, the edges of which, after having

* Richter, chap. xxviii. p. 162.

been previously excoriated by the application of lapis infernalis, were kept together by means of a suture. In this way, it seems, a reunion was effected, but it was not of long duration, as the wound burst open again before many days had elapsed.

M. Le Cat also, our author observes, thought of attempting the cure of a woman who laboured under a complaint of this kind, by excoriating the edges of the wound and bringing them together by means of a suture, after having previously dilated, by means of a canula, the portion of intestine corresponding with the anus. But this portion, it seems, had acquired so considerable a bulk, that it resisted violent efforts to reduce it, and the patient was so much alarmed by the failure of these endeavours to relieve her, that she refused to submit to any farther trials *.

These unsuccessful cases, M. Default observes, deterred surgeons from making any new attempts in cases of this kind, and they began, at length, to be persuaded that the cure of these complaints was impracticable, or at least

* Philosophical Transactions, in the place already quoted.

attended with great danger to the life of the patient.

Several practitioners, he remarks, have gone so far as to consider even the reduction of the intestine as dangerous; and all of them have supposed it to be impracticable, when the tumour has been of long standing and its bulk considerable. It has even, he adds, been asserted, that the portion of intestine next to the rectum oftentimes closes, and that its cavity becomes obliterated. Our author has found even Professor Richter falling into this mistake, although the invagination, which he supposes to exist, seems to be a decisive proof of the existence of a cavity. This pretended obliteration, however, M. Default assures us, is so far from being supported by facts, that all those he is acquainted with seem to prove that it cannot possibly take place. M. Le Cat, he observes, discovered no appearance of any such obliteration in the body he opened twelve years after the fæces had ceased to pass through the rectum; and in the patient whose case has been already mentioned as having died in the Hotel Dieu of marasmus in January last, the inferior portion of the intestinal canal was found, we are told, entire, though a little contracted.

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In that case a considerable portion of the ileum had been destroyed by gangrene, and nothing had passed through the rectum for more than two years before the patient's death. It is moreover remarked by our author, that all the patients, of whose cases we have any accurate account, have voided from time to time, by the anus, the mucus of the intestine; and this fact alone he considers as an evident proof that the cavity in such cases is not obliterated.

Some authors, he observes, from not having properly attended to the state of the intestine, seem to think that it protrudes out of the belly in its ordinary state, and that it is not its extremity that adheres to the skin; and hence their fears lest the fæces, or the mucus of the portion of intestine next to the rectum, should find their way into the cavity of the abdomen. On this subject he refers to Professor Richter's work * already quoted.

The thickening of the membranes of the intestine he considers as a more serious objection. This, he observes, has always been looked upon as an invincible obstacle to the reduction; but the case just now described proves, he thinks,

* Chap. xxix.

sufficiently,

sufficiently, the possibility of getting back the intestine into the cavity of the abdomen; and he is of opinion that even without any such instance we might have been led to attempt it from observing the effects of a similar mode of treatment in cases of *prolapsus ani* of long standing, and which, though seemingly irreducible, on account of their bulk, have been found to give way to a graduated compression.

The number and extent of the adhesions, which have inspired some practitioners with so much fear, ought not, our author contends, to prevent the reduction. For supposing them to exist, and to be even more dangerous than those which inflammations of the lower belly almost always produce, he does not see what advantage could be expected to result from leaving the invaginated portion of the intestine out of the abdomen. Besides, such a practice, he observes, may be productive of the most dangerous and even fatal effects. In proof of this he refers to M. M. Puy *, Hoin, and Le Blanc †, who, in different cases, have seen the swelling and inflammation of the protruded gut so considerable

* Mem. de l'Acad. de Chir. Tom. V.

† Operat. de Le Blanc, Tom. II. p. 445.

as to occasion death ; to M. Lange *, who, in another instance, found the intestine so inflamed and tumefied, that it became necessary to remove the stricture by means of an incision in the abdomen ; and lastly, to the case of the invalid, mentioned by M. Sabatier in his memoir on this subject †, whose life was endangered from a similar cause.

He considers it, therefore, as demonstrated, (and he speaks of this as the principal point for which he contends) that, in the case of a preternatural anus, sound practice requires the intestine to be replaced within the belly, and that such a reduction is always possible, whatever may be the size of the tumour, and however long it may have existed.

There remains, therefore, he thinks, only to be considered the most convenient and easy mode of retaining the intestine, and preventing it from again protruding. The ivory pessary which has been proposed for this purpose, he observes, by no means fulfils this indication, as the intestine is still liable to escape through the aperture in the instrument, which would thus

* Schmucker, *Vermischte Chirurg. Schriften*. Tom. II.

† *Mém. de l'Acad. de Chirurgie*, Tom. V.

become

become a new means of strangulation. Besides, he adds, the pressure of so hard a substance must necessarily affect the surrounding parts, and soon render it insupportable, at least if the pressure made by it is sufficient to fulfil the purpose it is introduced for; (but on what good grounds our author thinks it would be difficult to say) that of supporting the edges of the opening in the abdomen.

The soft cushion recommended by M. Sabatier, and the sponge employed in these cases by Professor Richter, are not liable, M. Deault observes; to the same disadvantages; but they both of them, he adds, are attended with the inconvenience, remarked by M. Leffler, of imbibing a portion of the thin and acrid matter that passes through them, and which must unavoidably excoriate the adjacent parts.

Our author next proceeds to examine the apparatus he himself adopted, of the tent made of linen, with the addition of a layer of lint, and other compresses, properly supported by a bandage of sufficient tightness. Such an apparatus, he observes, while it completely prevents the protrusion of the intestine, will constantly keep up a sufficient dilatation, by retaining the fæces in the interval of the dressings, and oc-

caſion them to remain long enough in the inteſtinal canal to afford nourishment to the patient. If a little fluid ſhould chance to eſcape, it will, he remarks, be abſorbed by the lint, and of courſe will occaſion no irritation on the ſkin. The patient, he adds, will ſoon be accuſtomed to the ſort of reſtraint which this apparatus will at firſt neceſſarily occaſion ; and the flight colics which muſt be expected to follow the early uſe of it will, he aſſures us, ceaſe in a very few days.

M. Default acknowledges that his views did not extend beyond theſe palliative effects when he firſt adopted this mode of treatment ; but the unexpected ſucceſs he experienced from it in the caſe which forms the principal ſubject of the paper before us carried his ideas ſtill farther, by ſhowing him the poſſibility of curing, at leaſt ſometimes, a diſeaſe hitherto conſidered as irremediable, and at the ſame time proving to him the little inconvenience, the advantage even, which might be expected to reſult, in every caſe of this kind, from undertaking the cure by the ſafe and ſimple means he has deſcribed, and varying them according to circumſtances.

In the preternatural anus, whether it be the consequence of a penetrating wound of the abdomen, or of a hernia that has terminated in gangrene, there can be only two states of the intestine, he observes, essentially different from each other. One of these, and the most common, is when only a part of the circumference of the gut has been injured ; the other is when the intestine has been completely divided. In each of these cases, our author remarks, an adhesive inflammation unites the edges of the section of this canal with the edges of the wound of the integuments and other surrounding parts, and from that period the parietes of the abdomen, if they remain entire, will prove a supplement to the portion of the canal which has been destroyed, and the fæces will continue to be voided by the anus, unless the portions of the intestine should, by their mode of adhesion, form an angle sufficiently acute to stop them in their progress.

The wound of the abdomen, from its affording an easier and shorter issue to the fæces than if they had to pass through all the circumvolutions of the intestines, and the morbid state of that canal, are, therefore, in our author's opinion, to be considered as the efficient causes of

the preternatural anus, or, in other words, of the discharge of the fæces through the abdominal opening. But to these primary causes, he observes, is soon added another, which, though secondary, is not less powerful in its effects. This is the contraction which takes place in that part of the intestine corresponding with the rectum.

But are these causes, our author asks, so powerful that the surgeon should be deterred from attempting to overcome them? The first of the three, that is to say, the opening in the abdomen, cannot, he observes, be an invincible obstacle, because it often happens, in hernias attended with gangrene, that the fæces resume their natural course after having passed for some time through the wound; and he is of opinion that, in the present improved state of surgery, an accident of this kind is not so often followed by a preternatural anus as formerly.

A tent of sufficient bulk, to act as a plug, may therefore, he observes, supply the want of continuity in the parietes of the abdomen; but this, he adds, is not all: for the two portions of the intestine often form an angle at the part where the separation has taken place; and

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this angle, as M. Morand formerly remarked*, affords more or less resistance to the passage of the *fæces* in proportion as it is more or less acute, and the endeavours of the surgeon to remove this obstacle, and direct the *fæces* again into their natural channel, will, our author contends, be successful only in proportion as he is able to enlarge the angle formed by the segments of the intestine, by separating them from each other. Long *tents*, or plugs, made of lint or linen, introduced and fixed in the two ends of the intestine, will, in M. Default's opinion, be sufficient to fulfil this indication, by bringing together gradually the divided portions of intestine in a straight line. By this method also, he thinks, the upper end of the portion of intestine corresponding with the rectum will be dilated, and thus the *fæcal* matter will gradually make its way to the natural anus.

M. Default, towards the conclusion of his paper, indulges himself with a hope that the method of treatment he has described may be the means, perhaps, of restoring to society a great number of those unfortunate persons who

* Mem. de l'Acad. des Sciences, 1735, p. 249.

labour under the complaint in question. Even supposing that this method can never be completely successful, (a supposition, however, which he thinks is sufficiently contradicted by the case he has described of the sailor) still, he contends, it can be productive of no inconvenience, and the patients who have recourse to it will, at any rate, he observes, derive from it the advantage of being able to retain, at will, the alimentary matter, so as to be no longer in danger of dying of inanition, and will be secure from the consequences of a strangulation, which are always alarming, and sometimes fatal.

XIII. *Experiments and Observations on the Matter of Cancer, and on the aërial Fluids extricated from animal Substances by Distillation and Putrefaction; together with some Remarks on sulphureous hepatic Air.* By Adair Crawford, M. D. F. R. S.—Vide *Philosophical Transactions of the Royal Society of London*, Vol. LXXX. for the Year 1790, Part II. 4to. London, 1790.

IN the present improved state of chemical knowledge, great advantages may be expected

pected to accrue from a judicious application of it to pathological purposes. It is with pleasure, therefore, that we see the ingenious and respectable author of the paper before us attempting to throw light on the nature of cancer by inquiring into the properties of its matter.

He begins with pointing out the varieties he has remarked in the colour and consistence of this matter as discharged by cancerous ulcers. In some cases, he observes, it is of a pale ash colour ; in others, of a reddish cast ; and in many instances of more or less of a brown tinge, which sometimes approaches nearly to black. Its consistence he has found to be, for the most part, thin ; but in the cancerous, as well as in other malignant ulcers, he has frequently met with a white fordes, which closely adhered to the surface of the sore, and seemed to be scarcely miscible with water. In the same patient the appearance of the discharge is frequently varied by internal remedies, or by external applications ; but if we except the temporary variations produced by accidental circumstances, the cancerous ulcer, in its advanced stage, is, he observes, very generally accompanied with a peculiar odour, more highly fetid and offensive than that which is

emitted by other malignant ulcers. It is, he farther remarks, well known that the cancerous matter occasions, by its absorption, scirrhous tumours of the lymphatic glands contiguous to the parts affected; and that it gradually corrodes the branches of the larger blood vessels, which have a peculiar power of resisting the action of other purulent discharges.

The matter employed by Dr. Crawford in his first experiments was procured from a patient who had for several years been afflicted with a cancer in the breast. It had been imbibed by cotton, and was of a brownish cast. Having diffused it through pure water, he divided it into three parts. To one of these he added vegetable fixed alkali; to the second, vitriolic acid; and to the third, syrup of violets. By the vegetable fixed alkali no sensible change was produced; upon the addition of the vitriolic acid the liquor acquired a deep brown colour, a brisk effervescence took place, and at the same time the peculiar odour of the cancerous matter was greatly increased, and diffused itself to a considerable distance through the surrounding air: the syrup of violets communicated to the portion of liquor to which it was added a faint green colour.

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Mr. Geber has shewn, that animal substances upon their first putrefaction do not effervesce with acids; that, after the process has continued for some time, a manifest effervescence takes place; and that this effect again disappears before the putrefaction has ceased.

Suspecting that the effervescence in the preceding experiment might have arisen from a change which the matter underwent, in consequence of its having been kept some days before the trial was made, Dr. Crawford repeated the experiment with a portion of reddish matter recently obtained from a cancerous penis. Upon the addition of the acid, the liquor, we are told, acquired, as before, a brown colour, its fœtor was much increased, and a manifest effervescence took place, although it was not so considerable as in the former instance. A portion of the same matter diffused through distilled water communicated a blue tinge to tincture of litmus, and a greenish cast to syrup of violets.

The author observes, that when syrup of violets was mixed with portions of cancerous matter from a variety of different subjects, the change produced was in some cases scarcely perceptible; but he assures us, that in every instance

stance the presence of an alkali was detected by dipping into the matter a slip of paper that had been previously tinged blue by tincture of litmus, and afterwards slightly reddened by acetous acid, the red colour having been invariably in the course of a few minutes abolished, and the blue restored.

The cancerous matter, as we have already seen, acquired, upon the addition of the vitriolic acid, a brown hue. It is well known, that this acid, when it is highly concentrated, communicates a brown or black colour to all animal and vegetable substances. Being desirous of learning whether the change which took place upon the addition of the acid to the cancerous matter in this experiment, was different from that which would be produced by the same acid in other animal substances, and particularly in recent healthy pus; Dr. Crawford took equal quantities of the latter, and of ash coloured cancerous matter, and having diffused each of them through thrice its weight of distilled water, he added to them equal quantities of concentrated vitriolic acid; the weight of the acid being nearly the same with that of the matter used in the experiment. The mixture containing the pus acquired from the acid a faint brown colour;

colour ; but that which contained the cancerous matter, was suddenly changed to a deep brown, approaching to black. When these mixtures were diluted with about twice their weight of distilled water, the brown tinge of the former entirely disappeared ; but the latter still retained its brown colour, although it was somewhat fainter than it had been upon the first addition of the acid.

The ærial fluid which was disengaged in the foregoing trials from the matter of cancer, by the vitriolic acid, appeared, we are told, from its odour, to have a nearer resemblance to hepatic than to any other species of air. As it seemed, from its sensible qualities, to be a very active, and probably a deleterious principle, our author endeavoured more particularly to enquire into its nature, and to compare it with common hepatic air.

The experiments he describes as having been made for this purpose prove, in general, that the fetid odour of the matter of cancer is increased by the vitriolic, but entirely destroyed by the concentrated nitrous and dephlogisticated marine acids ; that the ærial fluid, which is disengaged by the vitriolic acid, is soluble in water ; and that the solution deposits a reddish

brown precipitate upon the addition of nitrated silver. Whence it follows, that the cancerous matter contains a principle which has many of the properties of hepatic air, and which our author thinks, may perhaps not improperly be termed animal hepatic air.

Having learned from his experiments, as we have seen, that the matter of cancer is impregnated with an alkali, which is in such a state as to change the colour of vegetable tinctures, he had very little doubt that this was the volatile alkali; it being well known that putrid animal substances frequently abound with that salt, but have never been found to contain a fixed alkali in a disengaged state. With a view, however, more decisively to determine this point, he tried the following experiment:—A quantity of cancerous matter, diffused through distilled water, was introduced into a glass retort to which a receiver was adapted. The mixture was slowly distilled by means of a sand heat; and a small quantity of the liquor which came over into the receiver being poured into an infusion of Brazil wood, instantly imparted to it a deep red colour.

Hence it clearly appeared, that the alkali contained in the cancerous matter was the volatile,

tile, because it was separated by distillation with a heat which did not exceed that of boiling water.

It seemed extremely probable, that the above-mentioned alkali was united to the aërial fluid with which the matter of cancer is impregnated. Of the truth of this fact Dr. Crawford was persuaded by observing, that the smell of the cancerous matter was greatly increased by the addition of the vitriolic acid : for he could scarcely avoid concluding, that this phænomenon arose from an union between the acid and alkali, in consequence of which the odoriferous principle was extricated by a superior attraction.

This conclusion, he observes, has been confirmed by his subsequent experiments, which prove that the volatile alkali is capable of combining chemically with the aërial fluid contained in the matter of cancer.

Dr. Crawford next treats of the air extricated from cancerous matter, and from other animal substances, by distillation.

A portion of matter from a cancerous breast was diffused through distilled water, and introduced into a small coated glass retort, which was gradually exposed to heat in a sand bath till the bottom of the retort became red-hot. The
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neck of the latter was introduced below an inverted jar filled with water, and a quantity of air was received in the jar, which was found to consist of the common air contained in the retort. Two measures of it, mixed with one of nitrous air, occupied the space of a little less than two measures. This portion of air was strongly impregnated with the peculiar smell of the cancerous matter.

The heat continuing to increase, the water began to boil, and a large quantity of aqueous vapour arose; which, as soon as it came into contact with the common air, produced a white smoke. The smell that was now perceived was remarked by those who were present to be similar to that of fresh animal substances when they are boiled. The aqueous vapour in this part of the process was not mixed with any permanently elastic fluid.

When the greater part of the water was evaporated, the jar containing the first portion of air was removed, and the neck of the retort was introduced beneath an inverted vessel filled with mercury. Soon after this, a considerable quantity of air, having a fetid smell similar to that of burned bones, was extricated. This aërial fluid was mixed with a yellow empyreumatic.

matic oil. A portion of it being agitated with water was found to be partly imbibed by that fluid; and nitrated silver, dropped into the water thus impregnated, produced a reddish precipitate.

One measure of the air, obtained in the foregoing experiment, being mixed over mercury with an equal bulk of alkaline air, the volume of the mixture was found gradually to decrease; and, at the end of three hours, the air in the tube occupied the space of only one measure and two tenths. An oily deposit was now made upon the inner surface of the tube. At the expiration of eight days, the interior surface of the tube was covered with slender films, which had a yellowish cast, and which were irregularly spread upon it. The upper surface of the mercury within the tube was corroded; in some places it had a reddish burnished appearance; in others, it was changed into an ash-coloured powder, interspersed with brown spots. The tube was now removed from the mercury, and the air that remained in it had a strong fetid smell, resembling that of burned bones.

From these experiments the author observes, it appears that the matter upon which the peculiar

liar smell of cancerous ulcers depends is a very volatile substance, for it escaped at the beginning of the process; and also that this volatile substance, which, he thinks, is probably the active principle in the matter of cancer, is not changed, by simple exposure to heat, into a permanently elastic fluid; for the air that escaped at the beginning of the process, although it smelled strongly of the cancerous matter, was found, it seems, by Dr. Priestley's test, to be as pure as common air: and it was evident, he remarks, that the aqueous vapour which came over in the middle of the process was not mixed with any permanently elastic fluid; because when this vapour was received in an inverted bottle filled with mercury, it was condensed into water without any admixture of air.

From subsequent experiments with the flesh of a chicken, and with putrid veal, which the author describes, we learn that the aërial fluids extricated from fresh as well as from putrid animal substances, by distillation, have nearly the same properties with that which is disengaged, by a similar process, from the matter of cancer. Each of them appears to consist of two distinct fluids; one of which is soluble,
and

and the other insoluble, in water. Dr. Crawford observes of the insoluble portion, that it burns with a lambent flame, and has all the characters of heavy inflammable air; whereas the soluble part, he tells us, resembles the fluid which is extricated from cancerous matter by the vitriolic acid: it has a fetid odour, it decomposes nitrated silver, combines with caustic volatile alkali, and possesses many of the properties of common hepatic air.

There are, however, he observes, several particulars in which the animal and common hepatic air materially differ from each other. Although they are both fetid, yet their odours are not exactly similar. When common hepatic air is decomposed by the concentrated nitrous or dephlogisticated marine acid, sulphur is separated; but when animal hepatic air is decomposed by these acids, a white flaky matter is disengaged which is evidently an animal substance, because it becomes black by the addition of concentrated vitriolic acid. Sulphur is moreover separated during the combustion of common hepatic with atmospherical air; but when the air from animal substances is burned with atmospherical air, no precipitation of sulphur takes place. Indeed, that animal hepatic air

does not contain sulphur will be apparent, he thinks, from the following experiment.

Equal parts of pure air and of air extricated from fresh beef by distillation, were fired by the electric shock in a strong glass tube over mercury. A little distilled water was then introduced through the mercury into the tube, and was agitated with the air which it contained. A portion of this water being filtered, and a small quantity of muriated barytes being dropped into it, the mixture remained perfectly transparent. Hence, he infers, that the air extricated from fresh beef by distillation does not contain sulphur; for, if it had contained that substance, the sulphur, by its combustion with the pure air, would have been changed into the vitriolic acid, and the muriated barytes would have been decomposed.

He observes, that he has frequently repeated the preceding experiment with the air extricated, by distillation, from the putrid as well as from the fresh muscular fibres of animals, but without having been able to discover the least vestige of vitriolic acid.

The experiments, of which the author next gives an account, were made with a view to analyse the airs which are disengaged from
animal

animal substances by heat. From these it appears that the soluble part of the air which is disengaged from the lean of animal substances, by heat, consists of three distinct fluids, viz. of alkaline air, fixed air, and animal hepatic air.

After describing some experiments made with a view to determine the products which result from the combustion of pure air with animal air, or with the compound aerial fluid extricated from the lean of animal substances by heat, Dr. Crawford proceeds to treat of the products which result from the combustion of sulphureous hepatic with pure air; of the air extricated from animal substances by putrefaction, (and which, from his experiments, appears to consist of fixed and animal hepatic, mixed with a very small proportion of phlogificated air); and lastly, of the effects produced by exposing fresh animal substances to atmospheric, hepatic, and pure air. The experiments related under the latter of these heads appear, he thinks, to lead to the following conclusions respecting the process of putrefaction in the lean of animal substances:

“ The muscular fibres of animals contain
 “ fixed and phlogificated air, the inflamma-
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“ ble principle in the state of heavy and of
 “ light inflammable air, and a substance which,
 “ by means of heat or of putrefaction, is capa-
 “ ble of being converted into animal hepatic
 “ air *. When the muscular fibre, after the
 “ death of the animal, is exposed to the pure
 “ air of the atmosphere, the latter, by a su-
 “ perior attraction, combining with the heavy
 “ inflammable air, produces fixed air, and at
 “ the same time furnishes the quantity of heat
 “ necessary to the formation of animal hepatic
 “ air. The cohesion of the fibre being thus
 “ destroyed, the fixed, as well as the light in-
 “ flammable and phlogisticated air, which enter
 “ into its composition, are disengaged, and the
 “ two latter fluids uniting with each other pro-
 “ duce the volatile alkali.

“ The alterations which take place in putre-
 “ faction are in most respects similar to those
 “ which arise from destructive distillation. By
 “ exposure to heat the fixed air of the animal

* In a note to this part of his paper the author observes,
 that the existence of fixed, inflammable, and phlogisticated air
 in animal substances, and the composition of volatile alkali,
 were discovered before he began to give particular attention
 to this subject.

“ fibre is extricated, hepatic air and volatile alkali are produced, and the inflammable principle not coming into contact with the pure air of the atmosphere, is raised in the form of heavy inflammable air.”

Dr. Crawford observes, that, from the experiments he has related, it appears that in cancerous and other malignant ulcers, the animal fibres undergo nearly the same changes which are produced in them by putrefaction, or by destructive distillation. The purulent matter prepared for the purpose of healing the ulcer is, in such cases, mixed with animal hepatic air and volatile alkali. The compound formed by the union of these substances, which he thinks, may perhaps not improperly be termed hepatised ammonia, decomposes metallic salts, and acts upon metals.

These facts, he observes, seem to afford an explanation of the changes produced in metallic salts, when they are applied to malignant ulcers; the volatile alkali combining with the acid of the metallic salt, and the animal hepatic air reviving the metal, either by imparting to it the inflammable principle, or by uniting with the pure air which the calx is supposed to contain. He thinks it probable that the metal, thus re-

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vived,

vived, is in some cases again corroded by the hepatised ammonia, which communicates to it a black colour. Thus we may account, he observes, for the dark incrustation frequently formed upon the tongue and internal fauces, when venereal ulcers of the throat are washed with a solution of corrosive sublimate. And hence also, according to our author, the dark tinge which is frequently communicated by ill-conditioned ulcers to poultices made with a solution of sugar of lead. The action of the hepatised ammonia, he farther remarks, explains the reason why the probes are frequently corroded when they are introduced into sinuous ulcers, or applied to the surfaces of carious bones; and to the same cause he thinks it is probably owing, that polished metallic vessels are quickly tarnished, when they are exposed to the effluvia of putrid animal substances.

From his experiments, the author observes, it appears, that animal hepatic air imparts to the fat of animals recently killed a green colour; that it renders the muscular fibres soft and flaccid, and increases the tendency to putrefaction. It is therefore a septic principle, and hence he considers it as extremely probable, that the compound of this fluid with volatile alkali,
which

which is found in the matter discharged by the open cancer, produces deleterious effects; for although the mischief in cancerous ulcers seems principally to depend upon a morbid action of the vessels, whence the unhealthy state of the matter discharged by such ulcers is supposed to derive its origin, yet from the corrosion of the coats of the larger blood-vessels, and the obstructions in the contiguous glands, there can, he thinks, be little doubt that this matter aggravates the disease. The experiments he has recited, appear to prove, that the hepatised ammonia is the ingredient which communicates to the cancerous matter its putrid smell, its greater thinness, and, in a word, all the peculiar properties by which it differs from healthy pus.

From these considerations he inferred, that a medicine which would decompose the hepatised ammonia, and destroy the fetor of the animal hepatic air, without at the same time increasing the morbid action of the vessels, would be productive of salutary effects. The nitrous acid, he observes, does not destroy the fetor of hepatic air, unless it be highly concentrated; and in this state it is well known that it speedily corrodes animal substances. But the fetor of

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hepatic

hepatic air quickly disappears when it is mixed with the dephlogisticated marine acid, even though the latter be so much diluted with water as to render it a very mild application. He has found that this acid, diluted with thrice its weight of water, gives but little pain when it is applied to ulcers that are not very irritable; and in several cases of cancer it appeared to correct the fetor, and to produce a thicker and more healthy pus. He very candidly adds, however, that other cases occurred in which it did not seem to be attended with the same salutary effects. He remarks at the same time that some cancerous ulcers are so extremely irritable, that applications which are at all of a stimulating nature cannot be ventured upon with safety. And hence if the observations, which he has made on the efficacy of this acid as an external application, should be confirmed by future experience, he leaves it to the judgment of the surgeon to determine both the degree of its dilution, and the cases in which it may be employed with advantage.

The dephlogisticated marine acid, as is generally known, has the power of destroying the colour, the smell, and perhaps the taste, of the greater part of animal and vegetable substances.

We

We have seen that it corrects the fœtor of putrid flesh. And our author has found, that, when it is poured in sufficient quantity upon hemlock and opium, these narcotics speedily lose their sensible qualities. As it appears, therefore, to possess the power of correcting the vegetable, and probably many of the animal poisons, it seemed not unlikely, that it might be useful as an internal medicine. Conceiving that its exhibition would be perfectly safe, he once took twenty drops of it diluted with water. He soon afterwards, however, felt an obtuse pain, with a sense of constriction in his stomach and bowels. This uneasiness, notwithstanding the use of emetics and laxatives, lasted for several days, and was at length removed by drinking water impregnated with sulphureous hepatic air. He afterwards found, that the manganese, which had been used in the distillation of the acid, contained a small portion of lead.

Dr. Ingen-houfz has informed him, that a Dutchman of his acquaintance, some time ago, drank a considerable quantity of the dephlogisticated marine acid : the effects which it produced were so extremely violent, that he nearly escaped with his life. If therefore this acid should hereafter be employed as an internal medicine, it would
be

be necessary, our author thinks, to prepare it by means of manganese that has been previously separated, by a chemical process, from the lead and other metals with which that substance is usually contaminated.

CATALOGUE OF BOOKS.

1. **T**HE Chirurgical Works of *Percivall Pott*, F. R. S. Surgeon to St. Bartholomew's Hospital. A new Edition, with his last Corrections. To which are added, a short Account of the Life of the Author, a Method of curing the Hydrocele by Injection, and occasional Notes and Observations. By *James Earle*, Esq. Surgeon Extraordinary to His Majesty's Household, and Surgeon to St. Bartholomew's Hospital. 3 Vols. 8vo. *Johnson*, London, 1790.

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* This pamphlet is accompanied with "A moral and physical Thermometer; or, A Scale of the Progress of Temperance and Intemperance;" in which the effects of different liquors are exhibited, at one view, in their proper order. This was originally published, by Dr. Rush, in the *Columbian Magazine* for January, 1789.

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